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# INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

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## HEARINGS

BEFORE A

SPECIAL COMMITTEE INVESTIGATING THE  
NATIONAL DEFENSE PROGRAM

UNITED STATES SENATE

SEVENTY-SEVENTH CONGRESS

FIRST SESSION

PURSUANT TO

### S. Res. 71

A RESOLUTION AUTHORIZING AND DIRECTING  
AN INVESTIGATION OF THE NATIONAL  
DEFENSE PROGRAM

---

#### PART 11

MARCH 5, 24, 26, 27, 31, AND APRIL 1, 2, 3, 7, 1942

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#### RUBBER

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Printed for the use of the Special Committee Investigating  
the National Defense Program



UNITED STATES  
GOVERNMENT PRINTING OFFICE  
WASHINGTON : 1942

302387

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<sup>1</sup> Resigned from the committee on March 14, 1942, due to illness.

<sup>2</sup> Appointed to the committee on March 16, 1942.

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# INVESTIGATION OF NATIONAL DEFENSE PROGRAM

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THURSDAY, MARCH 5, 1942

UNITED STATES SENATE,  
SPECIAL COMMITTEE TO INVESTIGATE THE  
NATIONAL DEFENSE PROGRAM,  
*Washington, D. C.*

The committee met at 10:35 a. m., pursuant to call of the chairman, in room 318, Senate Office Building, Senator Harry S. Truman, Missouri, (chairman) presiding.

Present: Senator Harry S. Truman, Missouri (chairman); Senators Tom Connally, Texas; James M. Mead, New York; Ralph O. Brewster, Maine; Joseph H. Ball, Minnesota.

Present also: Senators Alexander Wiley, Wisconsin; Arthur Capper, Kansas; Gerald P. Nye, North Dakota; John H. Overton, Louisiana; James H. Hughes, Delaware; and Charles P. Clark, acting chief counsel.

The CHAIRMAN. The committee will come to order.

Mr. Henderson, you will be sworn, please. Do you solemnly swear to tell the truth, the whole truth and nothing but the truth, in what you are about to say to this committee, so help you God?

Mr. HENDERSON. I do.

## TESTIMONY OF LEON HENDERSON, MEMBER OF WAR PRODUCTION BOARD, DIRECTOR OF CIVILIAN SUPPLY DIVISION OF THE WAR PRODUCTION BOARD, AND ADMINISTRATOR OF THE PRICE CONTROL ACT

The CHAIRMAN. Will you be seated, Mr. Henderson, and give your name and connections to the reporter?

Mr. HENDERSON. My name is Leon Henderson. I am a member of the War Production Board. I am Director of the Civilian Supply Division of the War Production Board; and I am the Administrator of the Price Control Act.

The CHAIRMAN. You are appearing in the capacity of Price Control Administrator, isn't that true; or are you appearing in all capacities?

Mr. HENDERSON. I am appearing in all capacities, Mr. Senator, because some of the things involve supply, some of the things involve the matter of the distribution among the major competing elements in the civilian community, and some of the items involve rationing which is administered by the Office of Price Administration.

The CHAIRMAN. The reason this committee has called you is to give the people some information with regard to just what the rubber situ-

ation is, and how it affects the common, everyday man, and I mean by that the effect it is going to have on his ability to get around in the manner in which he has been accustomed. Tires, in other words, are the fundamental things so far as this rubber situation is concerned. As you know, we have had some preliminary off-the-record hearings, some of which you attended. We want you to go just as far as you think is strategically possible to give us the information that we want, and when you get through, as is usually the privilege of this committee, the Senators will ask you certain questions. If you have a statement you want to make now, you may proceed.

Mr. HENDERSON. Mr. Chairman, I am deeply grateful that the committee responded to my suggestion of moving up the opening date of the public hearing, because this committee has an opportunity of performing a public service and bringing home to the American public the gravity of the rubber situation. If I were asked what was the most important statistic of those that I will present and give in response to questions, I would say that a statistic that does not appear in any of the tables is the most vital to the American public which owns and operates upward of 30,000,000 passenger cars.

Later I shall present 3 tables of the rubber supply statistics and in not one of these 3 tables is this most significant thing apparent; that is, none of the requirements as spelled out in those 3 tables allow a single pound of rubber either for new tires or for camelback for any of these 30,000,000 passenger cars.

The CHAIRMAN. Tell us what you mean by camelback.

Mr. HENDERSON. Camelback is the trade name of the strips which are used for the recapping of worn automobile tires. May I say that again, Mr. Chairman, because I think there is a lack of understanding. In none of the computations of the requirements of the United Nations as I shall present them have we yet found, so that we could isolate it and make it available to the public, a single pound of crude rubber for new tires or for recapping for any of the 30,000,000 automobiles with their tires which America now possesses.

The CHAIRMAN. That comes about due to the fact that we must use all our rubber for defense purposes?

Mr. HENDERSON. That is correct, and as I shall show later, on the basis of the present rate of use, there isn't enough now to sustain the rate of military production and the most essential of the civilian needs exclusive of automobiles.

Senator BREWSTER. How far do you project that into the future?

#### UNITED NATIONS CRUDE RUBBER OUTLOOK

Mr. HENDERSON. I am coming to that in this statement, Senator Brewster.

I would like to present first the United Nations' crude rubber outlook as we found it about a month ago. There is no particular significance in the date of February 7, which was the date of the preparation of the table which you have other than the fact that it was 2 months after Pearl Harbor, but you will recall that it became increasingly evident about the last week in January and the first week in February that we could no longer rely on shipments from the Far East, from which we get ordinarily 98 percent of our rubber. Now up to that time, we had been getting substantial shipments. There

had been a masterly effort made to pick up all the rubber that was available for shipment in the Malay Peninsula and in the Dutch East Indies, and there seemed some prospect that the oceanways would be kept open.

Before Pearl Harbor we had been thinking in terms of 2 years' supplies. The estimates I am presenting here today are based on 3 years, and your judgment is as good as mine as to whether or not we have projected it for a long enough period.

We estimated about the end of January in this table headed, "United Nation's crude rubber position as of February 7, 1942," that the crude rubber shipments would total 434,000 tons; synthetic rubber production in this year, conservatively, delivered, laid on the line, available for use, to be 25,000 tons; making a total of new supply of 459,000. Those shipments, of course, include what was afloat, and we have been having a fairly satisfactory experience with those receipts, as the committee knows from its executive sessions.

Now the demand as of that time, giving effect to the new war program as far as it could be projected on the basis of tables then in effect, represented 409,000 tons for the United States military forces, for lend-lease of all kinds, and for South American export. The United States civilian requirements as of that time were 200,000 tons, and the rest of the non-Axis world 265,000 tons, or a total of 874,000 tons. The committee will notice, Mr. Chairman, that this is a United Nations' crude rubber outlook, because, as you know, there has been set up an over-all raw materials board for which William Batt serves as the American representative and Sir Clive Baillien as the British representative.

The CHAIRMAN. That includes all the 26 nations?

Mr. HENDERSON. This is a pooling of their military and civilian demands against a pooling of all of their stockpiles and of their potential receipts for this year.

Senator CONNALLY. Mr. Henderson, may I ask a question there? You spoke a while ago of a 3 years' supply. You meant we ought to try to accumulate—is that the idea—enough so that if we should be cut off entirely we could run for 3 years?

Mr. HENDERSON. Yes, Senator. When I come to the third presentation, you will see what drastic readjustments we have been forced to make in that supply situation.

The simple arithmetic of that, Mr. Chairman, is that the new supply minus the demand will leave us with a deficit of 415,000 tons. Now the total stocks at the beginning of the year of the United Nations were 693,000 tons. Mr. Chairman I am verging quite near to revealing essentially military information.

The CHAIRMAN. We understand that. We don't want you to reveal that.

Mr. HENDERSON. But I have given aggregates here; but I have also given a detailed table to the committee, and the authority for these statistics which I trust will not be released, that is the larger sheet.

On the basis of that serious situation—

The CHAIRMAN (interposing). Let me ask the committee to please mark that sheet that Mr. Henderson has referred to as "confidential"

Mr. HENDERSON. That is the sheet "United Nations' crude rubber position as of February 7, 1942."

The CHAIRMAN. I will ask the visiting Senators to do the same thing.

Mr. HENDERSON. That would mean that at the rate we were using our crude rubber—and everything is based on this crude rubber position—we would have 278,000 tons as a stock-pile for the entire United Nations as of the end of this year. In 1943 even with a liberal estimate, which the committee knows from its executive session is an exceedingly liberal estimate, considering the gravity of the threat against India and some of the nearby islands, we estimated perhaps 135,000 tons crude rubber shipments, synthetic rubber actual production and delivery of 165,000, and only 1,000 tons of United States grown guayule. In other words, a reduction of the new supply from 459,000 in 1942 to 301,000 in 1943.

At the same time, however, the demand for rubber for all types of military purposes as projected into 1943 had gone up considerably, over 208,000 tons increase. We had estimated that we could get the civilian, which represents not just consumers, but all nonmilitary in this country, including all mechanical goods for factories, down to 165,000, and that the rest of the non-Axis world would have a use of about 265,000.

Now, Mr. Chairman, the 265,000 for the rest of the non-Axis world is the same in 1943 as it was in 1942. We have been in close touch with the representatives of the United Nations that represent the large portion of that use, Lord Beaverbrook for England and the Dominions, and Donald Gordon, the Price Controller in Canada for their estimate, and I can assure the committee that the Allies had gone at least as far as we were asking our own population to go and in some cases considerably further.

(The nonconfidential table referred to was marked "Exhibit No. 351" and is included in the appendix on p. 4555.)

The CHAIRMAN. In other words, we are not asking our civilian population to do anything that our Allies are not asking theirs to do.

Mr. HENDERSON. That is correct.

The CHAIRMAN. And cautioning them to do it.

Mr. HENDERSON. That is correct.

That would mean a total demand of about a million tons. Now, looking back, that doesn't seem to be a tremendous demand figure when you consider that the world production has run something like one million seven and one million eight, but that would leave us with a deficit for the year of 746,000, and a net deficit, considering our carry-over, of 468,000 tons.

Senator BREWSTER. That isn't shown as a deficit on your schedule. That I take it is a typographical error.

Mr. HENDERSON. It should be a minus.

Senator BREWSTER. Yes.

Mr. HENDERSON. The committee members have duplicates of these charts plotted in colors.

The CHAIRMAN. Mr. Henderson, since you're away from the "mike" you'll have to talk a little louder so everybody can hear you.

Mr. HENDERSON. Well, obviously, Mr. Chairman, it isn't possible when you are converting crude rubber into military products and



civilian products to operate out of deficit, so the situation we faced over a month ago was the prospect that in the month of March 1943, we would have completely exhausted the United Nations' crude rubber supply. That is shown on this chart, and this would have been the stock deficit that we faced for the total 3 years.

I would like to call the committee's attention to this shift in the supply situation. We were getting a good operating surplus in these months of 1941, and due to this vigorous action on the part of the Rubber Reserve and their associates, we got substantial shipments which kept us on an operating-surplus basis. I invite you to see what happens at this point. We come down from this produced level here of far over 100,000 tons.

The CHAIRMAN. That is 100,000 tons surplus over use?

Mr. HENDERSON. No. One hundred thousand tons of new supply of all types. We come down to a new supply in May of this year to something less than 20,000 tons. But the important thing also to keep in mind is that despite the potential of increase from Para and Liberia, from guayule, the prospects of running the blockade, the new supply situation does not change significantly in this entire 3-year period.

Senator BREWSTER (interposing). That, of course, is predicated on no change in the Far East either way.

Mr. HENDERSON. That is correct.

Senator BREWSTER. If we should capture a little rubber ground, we might recover a little?

Mr. HENDERSON. We might recover a little, but I can't offer any great hope on that. We have been in touch with the plantation managers representing the United States companies with interests in the East. We have been in touch with the Dutch and the English Governments, and there would be, of course, a period of disruption to the normal resumption of supply.

Now, I would like to ask you to turn to the second table.

The CHAIRMAN. That is the one dated February 20?

Mr. HENDERSON. That is the one dated February 20; and that large table is also a confidential table.

The CHAIRMAN. Mark the large sheet "Confidential," please.

Mr. HENDERSON. There had been no progress, as the committee knows, in negotiations for an increased supply of synthetic. I am not prepared to discuss all the difficulties inherent in a vast expansion in what has been pretty much in an experimental field.

The CHAIRMAN. We expect to go into details of that a little later.

Mr. HENDERSON. Yes, sir.

But I can assure the committee that in this second table the estimates of 300,000 tons of synthetic-rubber production in 1943 and 600,000 tons in 1944 represent a very heroic target at which to shoot; but I have made this intermediate table because of the impression which has gotten abroad that this deficit which has been the basis for our drastic curtailment of all civilian goods and of our rationing, of our conservation of the existing tires for a 3-year period, and the other potential reductions that we have in mind, in order to show that even with this most astounding delivery of an average of 25,000 tons a month of synthetic in the next year, it still does not leave us with the possibility of continuing war operations based on

rubber or of maintaining the civilian economy with its simplest demands.

In other words, giving effect to an addition in the supply of the United Nations' stock pile of 300,000 tons of synthetic next year, all we would be able to do is to postpone for 1 month our running out of crude rubber.

(The nonconfidential table referred to was marked "Exhibit No. 352" and is included in the appendix on p. 4555.)

Mr. HENDERSON. Now, the committee is aware, of course——

The CHAIRMAN (interposing). That is not that the defense program will run out, but that means that we would run out if we would let everything run as usual.

Mr. HENDERSON. That is correct. That means that even on our reduced rations for the United Nations, even if we have this prospect, and that is a firm prospect, Mr. Chairman, of 300,000 tons, we still have a grave situation to face.

First of all, we would have, as you will note at the end of 1943, a deficit of some 333,000 tons. Now, may I ask you to turn to the third and the last table.

The CHAIRMAN. That large sheet is also confidential, is it not?

Mr. HENDERSON. Yes, sir.

Under the War Production Board set-up there is a requirements committee under the direction of William Batt who, as I indicated, is also the American representative on the United Nations' pooling of supplies, and this committee represents for the American group Lend-Lease, the Army, the Navy, the Maritime Commission, Economic Warfare, and civilian supply for this country. In other words, it is intended to gather at one table all the claimants for this reduced supply.

Now, the United Nations' picture, having been canvassed, it became evident that an additional immediate 25-percent cut must be put into effect on every one of these claimants; that is, despite the fact that on all of our nonmilitary uses in this country we had scaled down from an average non-tire use in the base period of something like 17,000 tons a month to about 5,500, we were faced with an additional 25 percent cut.

(The nonconfidential table referred to was marked "Exhibit No. 353" and is included in the appendix on p. 4556.)

The CHAIRMAN. In other words, the first estimate was about 200,000 tons for the year and you cut it to 150,000; is that right?

Mr. HENDERSON. Well, the 200,000—and we were compelled to come down to 150,000 for this year; and that 150,000, of course, meant that we had to do it in 9 months instead of 12, because in January of this year we used 32,000 tons for the nonmilitary in this country. In February we used 18,500, and in March we had gotten down to about 11,500, or in other words, we had already used up 62,000 of our 150,000 and still had not been able to find a single pound of rubber for the 30,000,000 passenger cars either by way of the new tires or by camel-back for repair.

The CHAIRMAN. What I said on the Senate floor the other day about the fellow taking care of his tires—if he didn't take care of them when these ran out, he wouldn't have any—is correct.

Mr. HENDERSON. That is the simplest way to say it, Mr. Chairman. Now, I give you in this third table how the United Nations expect to meet this problem.

Senator CONNALLY. Mr. Henderson, may I ask you in the United Nations where do you put Central or South America? Are they out or in?

Mr. HENDERSON. They are in.

Senator CONNALLY. They are in the United Nations?

Mr. HENDERSON. Yes.

Senator CONNALLY. All right.

Mr. HENDERSON. Yes; both for supply and demand.

Now, in the situation for crude as we face it now with a 25 percent cut, we will finish with 496,000 tons this year, and we will finish 1943 with 147,000 tons if we get 135,000 tons of new supply and 300,000 tons of synthetic, and if we are able as a nation, as well as all other nations, to cut our present uses another 25 percent. This is the only way that the United Nations can live on a minimum basis.

Senator BREWSTER. Mr. Henderson, in painting this picture would you agree that both as to the crude rubber possible shipments this year and next, and the synthetic rubber supplies, your figures do represent your extreme hopes and can well be characterized as extremely optimistic?

Mr. HENDERSON. They can be characterized as extremely optimistic because, Mr. Senator, I am optimistic as to the capacity of American industry to produce, and I am optimistic as to what our forces will be able to do in the protection of this 135,000; and I am optimistic as to what will be done by this Government and the Brazilian Government and others for the stimulation of a collection of Para rubber. I am giving you the basis of my optimism, but it is, as you say, optimistic.

Any place along the line that we fall down for any reason means that we have got to go right back to the requirements and cut them still further.

Senator CONNALLY. Mr. Henderson, you realize, of course, the possibilities without going into the details of synthetic rubber, don't you, if domestic is produced?

Mr. HENDERSON. I realize enough of it.

Senator CONNALLY. If you make any of it, you might make a lot.

Mr. HENDERSON. Well, Senator, what I realize is that in order to make it you have got to create an entire new industry; but more than that, the material which goes into the plants from which this synthetic rubber will come is competitive with 100 octane gas, competitive with toluol, and it is competitive in many respects with super A. A. A. priority material for military purposes.

The CHAIRMAN. And it is true also, isn't it, that the priorities situation of the proposed synthetic rubber plants has been put so low that at the present time they can't get the material to make the plants?

Mr. HENDERSON. I am pleased to tell you, Mr. Senator, that that has been changed.

The CHAIRMAN. Well, I am glad to hear that.

Senator BREWSTER. In the last 24 hours?

Mr. HENDERSON. This is Thursday: No; it was changed about 3:46 on Tuesday afternoon at a meeting of the War Production Board; but back of that, Senator, let me say that was what you would call the stamp of approval of the top board, and it does not accurately reflect what had been the highest staff decision both in the R. F. C. and in the War Production Board, and concurred in by the military authorities. It is dramatic to say it was 3:46 on Tuesday, but those of us who have had to wrestle with this problem, Mr. Jones and Mr. Batt and Mr. Nelson, to a smaller degree myself, the Army and Navy, had reached the determination and it lay only in making the calculation as to what we just simply had to have. Now, back of every one of these items, it must be obvious to you, there is a tremendous amount of staff work and a recalculation that has to be done. That is true particularly on this estimate of the foreign supply. We had to see, in other words, what we were faced with on our whole truck situation in this country. As far as tires are concerned, we have two classes: We have the class A and the class B.

Senator BREWSTER. Before you go into that, Mr. Henderson, I think it is fair for the committee and others to understand that in none of the discussions by any of the experts or others concerned, before the subcommittee, has there been any suggestion of a greater production than 300,000 tons in 1943. That is the outside estimate that has been made by anyone concerned, distinguishing productive capacity from production, which is extremely important. So, I think it is simply to be said that it is optimistic. I won't say it is unwarranted.

Mr. HENDERSON. Well, the decision means not just priorities, but an allocation and a scheduling of this material regardless of where it hits—military, overseas, or here at hand.

The CHAIRMAN. I would like to ask you a question right there, Mr. Henderson. What effect is this rubber situation going to have on the transportation problem? Will the railroads be able to handle it if we take all the trucks off the road?

Mr. HENDERSON. I am coming to that.

The CHAIRMAN. You will answer that later?

Mr. HENDERSON. Yes, sir.

In the chairman's opening remarks he indicated that he was interested in this meeting in seeing what was ahead for the civilian population in this country.

The CHAIRMAN. That is principally what we are holding this hearing for, to find out what effect this is going to have on the civilian population.

Mr. HENDERSON. I cannot too strongly emphasize that in these calculations as we have made them here, we still have not found anything for the 30,000,000 passenger automobiles in the way of additional tire production or of camelback for recapping. In the freeze we got a stock-pile of roughly 8,000,000 tires, and our first quotas were intended to stretch that out for a 3-year period for the class A group. I would be safe in saying that every member of Congress is almost as familiar with what is left out of that class A as I am, because of the petitions that have come from citizens. In other words, it is a very, very limited group.

The CHAIRMAN. It is my privilege to send you a bale of petitions almost every day.

Mr. HENDERSON. I think when this committee has finished its deliberations it will agree with me that the action we took to freeze the existing stock of tires was well justified, and that instead of the situation improving, it has become increasingly grave. I am frank to admit, Senator Brewster, that I think it is going to take almost a miracle to get that synthetic rubber. I trust that the committee, as it gains knowledge of what the difficulties are involved, the nature of the contracts for the butadiene and the styrene, and the contracts for the synthetic rubber, the problems that are involved in translating that synthetic rubber into goods that can be used, that they will let the public know of the immensity of this job.

I want to emphasize also that these tables cover the United Nations and we can't become heartened by the fact that there is a small balance on hand at the end of 1944. That balance, optimistically estimated at 65,000 doesn't represent what this country would consume in a month if we took the lid off. Of course, as far as distributing that kind of stock-pile among the existing producers, it would bring their stocks down to a minimum. The problems that we face of having an inventory even for our productive machinery, is very grave.

Senator BREWSTER. That is less than 5 percent of what you would use in the next 2 years, isn't it?

Mr. HENDERSON. That is correct.

Senator BREWSTER. So that it is a terrifically small margin with all the prospects in view?

#### CURTAILMENT OF RUBBER FOR CIVILIAN USE

Mr. HENDERSON. I would like to give you an idea of what we have already done in the way of curtailment of civilian uses. In the first place, we have, as you know, had to cut off automobile production; we had to cut off truck production in March, and there is very little prospect of truck production getting any additional tires on account of this shortage. Now, in the base period which we have taken for our calculations, which was April 1, 1940, to March 31, 1941, the non-automobile uses, nontire uses, I should say, in this country averaged 17,440 tons a month. The allocation in the month of March for that same class of wants is 5,500 tons, which means that we have already accomplished a curtailment of 11,940 tons a month which was taken out of civilian goods other than tires.

I had hoped that this was as deep a cut in civilian life as we would have to go. In fact, I had hoped that we could find some available crude for class B trucks and for the most essential of these passenger automobiles.

The CHAIRMAN. What is a class B truck?

Mr. HENDERSON. A class B truck is one that is the retail delivery truck, like dairy products and things like that.

The CHAIRMAN. Grocery delivery trucks?

Mr. HENDERSON. Yes.

The CHAIRMAN. Does that affect the farmer's delivery trucks, too?

Mr. HENDERSON. No.

The CHAIRMAN. He is in a special class?

Mr. HENDERSON. Yes, sir.

Now the committee will see that we have got an allotment of about 10,000 tons for civilian life in this country, beginning in April, and

automatically we face a deficit because the class A trucks are now getting 6,500 tons a month for necessary tires and for strong camelback for the repair. In other words, when you get up to this truck and bus situation, you can't use reclaimed camelback or reclaimed tires. You have got to take something of that precious crude that you have got in order to maintain the transport by truck and bus, and that is increasing because of the demands that are being made on the transportation system otherwise.

The CHAIRMAN. All those trucks and buses in the transportation setup, particularly the common carriers, are in class A.

Mr. HENDERSON. That is right, but just to use one illustration, because of the diversion of tankers—

The CHAIRMAN (interposing). Are taxicabs in class A?

Mr. HENDERSON. No. Taxicabs are considered a luxury good.

The CHAIRMAN. All right, proceed. I was told the other night by a taxicab driver that he was very sure that as soon as enough Senators had their toes tread on in the buses, he would get tires. [Laughter.]

Mr. HENDERSON. That is what they tell me, also.

Senator CONNALLY. Mr. Henderson, do you really regard the taxis as semiluxuries?

Mr. HENDERSON. When you place them, Senator, against the other demands; yes. But we have put the taxicab in the class B group. I am coming to that. I am coming to that a little bit later. Before another committee, a House committee that had a bill before it to make the taxicabs in the District a public utility and therefore entitled to tires, I said I used the word "luxury" and it has stuck with me ever since. I consider them, of course, a very, very essential item of transportation, as does everybody else, but as compared to police cars, as compared to doctors and nurses who are drawing tires now, they are a luxury which this civilization has been able to afford.

Senator CONNALLY. As to hauling freight, though, people are just about as important as freight, aren't they, when it is necessary to get somewhere?

Mr. HENDERSON. Well, people have more ingenuity than freight. [Laughter.]

Senator CONNALLY. You also figure they have more legs than freight.

Mr. HENDERSON. Yes, sir. And Senator, we get reports coming in now of some of the amazing readjustments that have been made by doubling up, and there is more to come, as I am going to discuss a bit later.

The CHAIRMAN. Proceed.

Mr. HENDERSON. If you take those 6,500 tons for the trucks and these March figures of 5,500 tons, we are already up to 12,000 tons, and we have got to get down to less than 10,000 tons. In other words, we have got to cut 2,000 tons more. In order to keep in operation any substantial number of taxicabs or of retail trucks or of defense workers' cars, even on the most drastic minimum basis that we can calculate, we have got to find 650 tons more out of this already shrunken demand.

The CHAIRMAN. So the pleasure-car driver is all the way out on the limb. When his present tires wear out, under present conditions he won't get any more.

Mr. HENDERSON. Under present conditions, from where we sit to-day, that is correct, because out of the 30,000,000 cars those who would be entitled under our A and B list to get either recapping or a reclaimed tire, as we now contemplate, would only cover, oh, somewhere between five and six million cars. In other words, about twenty-two to twenty-four million cars will not be provided for even when we find this additional 2,000 tons of rubber that we must cut and the 650 more tons that we want to get. Put it this way: We have got to cut 2,650 tons out of the March list, and we have got to do it beginning in April.

That 500 tons a month represents a calculation we have made of trying to see what we could do for retail delivery, for the defense worker, for the taxicab, and things like that. As I say, we are being optimistic on that. We have had conferences with the technical people in the rubber companies, and where it was thought that it was a most drastic cut even to contemplate making a tire with 3 to 4 pounds of crude rubber and the rest reclaimed, we have got down to the basis of about two-thirds of a pound for a reclaimed tire. We haven't got enough rubber for reclaimed tires, so we are driven to the next outpost, which is the use of a reclaimed camelback, in which each tire recapping will have perhaps an ounce and a half of rubber for all purposes—all purposes. An ounce and half.

Now it is a pretty involved calculation, Mr. Chairman, and I should be glad to present it at some time.

The CHAIRMAN. Just place it in the record and those fellows who have a head for figures will have a chance to read it. Proceed now with the fundamental things that we can understand without being an expert statistician.

#### RUBBER RECLAIMING

Mr. HENDERSON. Well, to many people, the next hope of salvation seemed to be reclaimed rubber.

The CHAIRMAN. We are very much interested in reclaimed rubber.

Mr. HENDERSON. The most important fact about reclaimed rubber is that very few products can be made from it alone and in almost every case some crude has to be mixed in, and that is true of the tire. Of course, the tire as it comes back and is reclaimed has some crude and reclaimed in it; but the most important thing to be remembered, as I say, next to this, is that when we cut the military back, then they are going to be in the market, of course, for reclaimed; that is, the computations upon which these military demands have been made are in terms of tons of rubber that they need, and when the crude supply to go with it is cut back 25 percent, we face for them as well as for others a prospect of an increase, so that the situation is a pretty solemn one as far as our reclaimed, because the big source of reclaimed has been the tires which have been discarded. We are not making any more tires.

The CHAIRMAN. There are not going to be as many discarded; we are not going to have the same sort of source that we have had.

Mr. HENDERSON. That is absolutely correct, and more importantly, scrap dealers of course are holding that scrap back. They are going through this old scrap to see what tires there are that could be sold, because there is no ban on the sale of used tires at the present time.

The CHAIRMAN. Do you expect to put such a ban on them in the future.

Mr. HENDERSON. We may have to, but Senator, I would rather not discuss it. It is taking part of the adjustment load right now, although some outrageous prices are being charged. I don't know what we will do on that situation.

Senator CONNALLY. Mr. Henderson, may I ask you a question? This may seem fantastic, but is there a likelihood that tire people could devise coverings, we will say, wearing surfaces of other materials on the outside of their tires, wear those out and still have the tire left, or not—leather, we will say, or something like that?

Mr. HENDERSON. We need leather as badly; that is just it. Everywhere you turn on one of these things, you turn to a material that is almost as badly needed as rubber. We have set up quietly a place to consider these alternatives. I think the ingenuity of the American public, of this group with about 25,000,000 cars that we can't take care of as we see it now, is going to produce something that will run, even if it bumps and even if it destroys the peace of the night, and even if it will only go 15 to 20 miles; that the native urge, as Bill Knudsen says, of this country to go from one place to another sitting down is not going to be licked by the fact that we are short of rubber. [Laughter.]

Now I wish I could say that we had something. Nearly every one of the tire companies naturally has been looking at what might be its potential rival. Germany has got some kind of steel band that they use. One fellow made a rope tire with three winds and put some sail cloth and a shellac binder on it and could run about fifteen miles an hour. But don't anybody get the idea that there is a surplus of shellac or that there is a surplus of rope, or even of canvas. There is a wooden wheel, and there are all kinds of springs. It is going to be a tough thing for this proud nation to come down to some of those. Frankly, I welcome any suggestions that anybody has.

The CHAIRMAN. I think they are perfectly willing to come down to anything in order to win the war if they know it is honestly necessary for them to do it.

Mr. HENDERSON. On the reclaimed situation, just to give you a brief picture, as we see it now, the demands over the next 3 years are going to be in excess of 2,000,000 tons, and the most optimistic possibility of supply, the most optimistic that I could afford to make, is between one million four and one million five; and in order to do that, all the assumptions about throwing away of tires in the next 2 years, the discarding of the truck tires, plus the most extended campaign for rubber scrap collection that we have known. That is what we face there. In other words, to put it in its roughest terms, there is only about two-thirds of the reclaimed in sight in order to piece out and in order to make any reclaimed for this small number of tires, the recapping that we are hoping to get in the A and B classes.

We may be compelled, Mr. Senator, to put out a greater percentage of our new tires, that precious stock of some seven to eight million tires that we have got locked up now with a freezing order—we may have to put out a greater percentage of them this year because



of the reason that you run into a bottleneck of reclaimed. We have got to have an expansion of the reclaiming facilities and we may have to have some expansion of the recapping facilities, but obviously the Government, the Rubber Branch of W. P. B., has got to take charge of reclaimed in the same way as they have taken charge of the crude.

Senator BREWSTER. In speaking of your freezing order, to what extent have you moved to recapture any stocks in the hands of ultimate consumers, mindful of certain allegations as to excessive accumulation, that some concerns have 3 years' stock?

Mr. HENDERSON. We have asked for an inventory. To date we have not moved to take from any individual that which he was either foresighted enough to buy or that which he hoarded.

Senator BREWSTER. Do you have any indication of excessive accumulations?

Mr. HENDERSON. We have some; yes. What we are doing in those cases is to watch to see whether there are any violations of sale. We are proceeding first to maintain that stock of tires intact. As far as bootlegging is concerned, right there I would like to say that if the testimony that I am giving today doesn't put tire bootlegging on a different basis from prohibition, then I have missed my ability to present serious material to a congressional committee. We are going ahead on the assumption that this is a war need, and that when some tire dealer slips a tire out the back door, illicitly, he is breaking down the fabric that has been erected by 9,000 boards of neighbors for the orderly and equitable distribution of tires. We expect to do that, and the sooner the community understands that this is not another matter similar to prohibition, the better off we will be in the seriousness of the approach to things.

Senator BREWSTER. If the people are assured that everyone is equal before the law, I don't think you will have any occasion for concern, Mr. Henderson, and I know that is your objective.

Mr. HENDERSON. That is correct.

Senator BREWSTER. There are no big fellows or little fellows that get by.

The CHAIRMAN. Some of the dealers complain—I have had letters from a great many, stating that they have large stocks of tires on hand and if they are not allowed to dispose of those tires, they will deteriorate just as badly on the shelf as on the cars. Is that true?

Mr. HENDERSON. Not according to the highest grade technical advice that we can get. As you know, we have a plan whereby any dealer who wants to dispose of his stock can dispose of it. He isn't locked up for the duration on that.

Senator MEAD. In that connection, Mr. Henderson, your organization or some organization has made arrangements for the repurchase of tires now in the field for the pooling of those tires?

Mr. HENDERSON. That is correct, and incidentally, Senator Brewster, you asked me a question the other day about the possibility that one group had \$60,000,000 worth of tires. I have checked that, and that is not true. We have the reports, and a percentage is being turned into this pool. That is working very satisfactorily, Mr. Senator. I think that probably it will be extended to automobiles, also. There are a lot of individual choices that an automobile dealer has to make

as to whether he can store a car profitably, whether he could afford to carry it, whether he has enough business coming along; and we are working now on a similar plan through our Industry Council. We have an Industry Council composed of leading businessmen, that works on those financing projects.

Senator MEAD. In the repurchase of tires and automobiles, are you going to consider the question of a possible double profit by the manufacturer and possible loss by the retailer?

Mr. HENDERSON. That has been computed on a basis of how long the thing has been retained. He won't get the full retail margin or the additional mark-up if it is sold. We haven't got the details on that worked out. We are meeting with the automobile dealers' representatives constantly now.

Senator MEAD. If the manufacturer has made one profit in the sale of a tire, if he makes another one after it has been returned to him, he will have a double profit. You want to inquire into the safeguarding, I believe, of the small fellow who may be called upon to sustain a loss.

Mr. HENDERSON. May I ask Zenas Potter, who is handling that, to explain it?

Do you wish to swear him in?

The CHAIRMAN. Yes. It is customary to do so before this committee.

Do you solemnly swear to tell the truth, the whole truth, and nothing but the truth in the testimony you are about to give before this committee, so help you God?

Mr. POTTER. I do.

#### TESTIMONY OF ZENAS L. POTTER, INDUSTRY COUNCIL, OFFICE OF PRICE ADMINISTRATION

The CHAIRMAN. Please give your name and connection to the reporter.

Mr. POTTER. Zenas L. Potter, member of the Industrial Council, Office of Price Administration.

This was taken up yesterday at the small business committee. At a hearing of the tire dealers the same question was raised. Afterward I met with 30 of the leading tire dealers, went over the whole contract with them, and I think they were all convinced at the end of the time that we had not allowed the manufacturers any double profit or windfall profit on this deal. It is a technical problem and will take a great deal of time to discuss, but I think the dealers are satisfied that we have dealt fairly in the matter.

The CHAIRMAN. It is already a matter of record in Senator Murray's committee.

Mr. POTTER. That explanation was not a matter of record. I hope it will be before we get through.

Senator MEAD. That was after the meeting.

Senator CONNALLY. Mr. Henderson, may I ask you another question?

Mr. HENDERSON. Yes, Senator.

Senator CONNALLY. Is there any regulation about the resale of a tire by the private owner? Suppose a private owner has some tires and doesn't need them very badly, and somebody wants to buy them who needs them worse?

Mr. HENDERSON. If it has gone less than a thousand miles, it is subject to the regulation, which means it can be sold only to a dealer or a person with a certificate issued by the local board.

Now, Mr. Chairman, I told you we have got to find 2,650 tons out of 12,000, and that 12,000 is down from something like 25,000. In that, of course, are the 3,000 tons for what are called mechanical rubber goods—that is, the belting, pulleys, and things like that which are used by American industry. There are 915 tons a month which are used for wire cable. Boots, which take a very heavy toll, take several hundred tons, and the miscellaneous group takes about 500 tons.

In order to get that reduction and also to try to conserve, even against his will, for the recreational driver who has some rubber on his tires, we have a program which I would like to tell you about, which has not been announced before.

The CHAIRMAN. Now, to get back to my freight question, Are we going to be able to continue the freight transportation by truck?

Mr. HENDERSON. That is No. 3. I will move it up to No. 1. The Labor Division and the Civilian Supply Division and our Transportation Division in the W. P. B. have been gravely concerned about this matter. In the Executive order the general responsibility for the rationalization of transport, both rural and urban, of all kinds is placed in the Coordinator of Transportation. We have taken that matter up with Mr. Eastman and with Commissioner Rogers, who is acting for him, and they are at work now on what has got to be, the doubling up, the diversion, the rationalization of transport, the concentration of delivery services of all kinds.

The obvious answer to your question is that we can't go on on the present basis. It is just impossible, thinking of the increased demand that is going to be laid on the whole transportation system.

The CHAIRMAN. That means that the railroads are going to have to have an increased burden.

Mr. HENDERSON. That is correct. It means that we will probably have to divert pleasure busses and things like that into the transport of defense workers. While I don't want to anticipate what Mr. Eastman is doing, these are some of the things that are being discussed. But the outstanding thing which we need to get across to the American public is that they must simply stop driving so fast, and that is particularly true coming into the summer months. We have had very good success up to date with the initial appeal which I made to the governors for the reduction of speed, but we have reached the time when we have got to go back and make an additional demand, and, Mr. Chairman, I think the time is coming when the person who speeds, who goes above 40 miles an hour for something that is not of the most urgent nature, is going to be in the category of the slacker. I think that is what we face. If you sit where we do and where you do now and see the seriousness of this, we have got to get a formal reduction in speed limits to about 40 miles an hour. Arriving at that point involved a very extensive study by the Coordinator of Transportation as to how that would affect busses and how it would affect these fast freight deliveries.

Senator CONNALLY. Mr. Henderson, may I ask you another question?

Mr. HENDERSON. Yes, sir.

Senator CONNALLY. Is there any regulation about how many cars, for instance, one family may have? Some of these families have——

Mr. HENDERSON (Interposing). There is no regulation on the number of cars that they can have, but there are rules that prevent them from getting any additional tires, even if they are in a preferred class, if they have another car available.

Senator CONNALLY. That is fine, I think. But where papa has a car, and mama has a car, and Mary has a car, and Jimmy has a car, some regulation along that line ought to be adopted, taking either the cars or the tires.

Mr. HENDERSON. We have the Rubber Branch of the W. P. B., of which Mr. Arthur Newhall is the Chief, which has received and acted on our suggestion that arrangements be made with the industry for the making of reclaimed camelback and also for the making of some reclaimed tires which we may be able to use and thus get our experimentation. In other words, that is already in the works, and that is something entirely new. That is, we expect to have a camelback which will have for a passenger tire only about 1½ ounces of rubber, and we expect that the industry will develop a standard tire of reclaimed rubber with no more than two-thirds of a pound of crude.

We are arranging within a very, very limited time, to make 150 tons of crude available for a camelback to be used on class B trucks. They are the trucks, Mr. Chairman, that are owned by retailers, by the dairy companies, and by the taxicabs, and things like that. We expect, as I say, to find somewhere out of even this limited supply 150 tons. But there are no new tires for that group as we can see it now. We hope to take care of that, but it means, however, that they will have to come forward with their own plans for the rationalization of transport, and I am glad to say that the labor unions and the other groups that are affected by this type of approach have responded very, very nicely up to the present time.

Senator BREWSTER. Have you a bottleneck now on the recapping and retreading facilities for what you are willing to allow?

Mr. HENDERSON. We have a little bit of a bottleneck there.

Senator BREWSTER. There has been criticism that while they have been allowed to fix these tires, they haven't been allowed the rubber with which to do it. Is that true?

Mr. HENDERSON. That is true. They have not.

Senator BREWSTER. Are you expecting to remedy that?

Mr. HENDERSON. As I said, in April we have got to cut 2,000 tons anyway. Then we have got to get 500 more for the recapping of tires in A and B. Then we have got to get 150 tons for the recapping of these class B trucks. We expect to get that. I don't know where. I have told the staff it is their job, not mine. But it means additional amounts of diversion away from civilian life.

We have got to have, and are arranging to start, a scrap collection. There is no use fooling ourselves. We face the possibility of requisitioning all the rubber scrap. You understand that our potential, even if we got what there is in the graveyards and what there is in the scrap yards now—we would still be one-third short on even this limited program in the next 3 years.

The CHAIRMAN. Of course, the very fact that the people can't use their tires is naturally going to cut down the scrap, isn't it, because

they are going to run these tires until they are no longer even fit for scrap.

Mr. HENDERSON. That is right, and we are arranging with the tire companies that they will make a lot of boots. You remember those in the old cars. I have had as high as four in mine, and I suspect some people have beaten me.

We have already arranged for the expansion of reclaiming facilities. We think we need at least 70,000 tons. We have already arranged for an expansion, if we find it necessary, of the recapping facilities. And also they will be able to get the material, and I think they will all be kept busy. We are considering now, and obviously we have got to get a reduction in the amount of crude that is used in the class A truck tire.

The two things go together. If we have to reduce that, and we will, it is a pretty sure bet, unless they want to commit hara-kiri, that they won't be running much over 40 miles an hour.

Of the additional possibilities, the things that we face, these are things that are in the works now: Another appeal for speed reduction and perhaps for legislation. Reclaimed tires and particularly reclaimed camelback. The rationalization of transport, and what that involves is tremendous. A reclaiming order, taking control of reclaimed the same as crude. Expansion of the reclaiming capacity, expansion of the recapping facilities, and a reduction—

Senator CONNALLY (interposing). You are, no doubt, encouraging recapping wherever possible, in order to save the new rubber for new tires, are you not?

Mr. HENDERSON. We are. Here is the way it works. We have class A and class B. If there are no new tires available for a class A customer, he gets the first option on the use of the recapping facilities.

The CHAIRMAN. Aren't a large number of tires even now unfit even for recapping?

Mr. HENDERSON. That is correct, and that means that what we face in this group—and there is no use blinking at it—is that if we undertake to try to get enough recapping to keep 5,000,000 cars for doctors and taxis and defense workers and inspectors and things like that, going, it is obvious that we will probably have to have compulsory inspection service to see that that isn't wasted. And that is true of trucks.

Senator MEAD. There is a point in the life of a tire when recapping becomes impossible.

Mr. HENDERSON. That is true.

Senator MEAD. And if they recap it prior to the time when that point is reached, they have conserved the life of the tire and, therefore, some inspectional service might be necessary.

Mr. HENDERSON. That is correct. I think that we will probably be selling mileage the same way that some of the big fleets are buying their automobile tires now.

Senator WILEY. Mr. Chairman, may I ask a question?

The CHAIRMAN. Certainly.

Senator WILEY. My understanding is that there is no provision for recapping for anyone except in class A or B. Is that correct?

Mr. HENDERSON. That is correct.

Senator WILEY. That means that the average driver of any car has no right in that direction right now.

Mr. HENDERSON. That is correct.

Senator BREWSTER. We may reveal what has hitherto been a trade secret, that proper use and inspection of the tires can result in 30 to 40 percent economy, or something like that.

Mr. HENDERSON. That is right.

Senator BREWSTER. They haven't advertised that fact hitherto.

Mr. HENDERSON. They have, recently. I think the institutional advertising which the tire companies have done to point out how you many conserve your rubber is very praiseworthy. It has been one of the best things that we have had as an aid to reduction in speeds and to conservation of rubber. I expect to get more of it.

May I finish on just a few of the additional possibilities that the American public faces?

The CHAIRMAN. Proceed.

Mr. HENDERSON. Gasoline rationing. We may need to utilize the gasoline rationing as a means of drastically reducing recreational driving. In other words, the rationing of gasoline may eventually have to be put on a basis of the class of essential use. We have got to set up in a much enlarged form the experimenting with the synthetic rubber. Obviously, we don't know much about the uses of synthetic rubber in this country, and it is essential to the Army and the Navy and to the civilian population that we do know how to use that.

Then we get to the point that Senator Connally has mentioned, which is the toughest of the lot in my opinion. That is where I need some help, Mr. Senator. It is not in the way of legislation. It is a pretty serious thing to contemplate taking a tire off of a car of a civilian and giving that to a preferred class of civilian. That is a pretty serious matter.

The CHAIRMAN. A very serious matter. We are going to have trouble when we try to do it.

Senator MEAD. But if it is necessary, it should be done.

Mr. HENDERSON. We have been back and forth over that a long time, and I am frank to tell you that I don't know what to do.

The CHAIRMAN. I am of the opinion that if the average fellow believes that he is making a sacrifice to win the war, he can be convinced that it should be done, and I think he will do it voluntarily.

Mr. HENDERSON. He would do it for a police car or for an ambulance, but we are going to have 17,000,000 defense workers before the end of the year, and there just isn't a shade of a possibility of providing for 17,000,000 cars for defense workers, as I have said.

Where do you draw that line? I mean we are going to have to draw the line to get it down for a few million of those who have the longest distances to go, and we are probably going to have to compel them to restrict their car's use to actual transportation, you see. There are some tough things ahead on this.

Senator CONNALLY. May I interrupt right there?

Mr. HENDERSON. Yes.

Senator CONNALLY. Also, of course, you face a legal question there, because the Constitution prohibits the taking of private property except for public use. You would have to tie it into some war use,

indirectly at least, probably, before you could legally take private property and turn it over to somebody else.

Mr. HENDERSON. That is obviously a question, and that is the reason that the social problem is intensified. It is a social problem of the first magnitude, the like of which this country has never faced. When you start to walk up to that line, I can tell you that by the time you get your toes within a yard of it you begin to back away and say, "I will have another look at it."

I think, Mr. Chairman, I have finished.

Senator MEAD. Mr. Henderson, right there, when it is necessary to confiscate civilian tires, it will be done when other methods are exhausted and it will be done when proper compensation will be made? And when that point is reached, I think the American public will make any sacrifice.

The CHAIRMAN. Senator Mead, did you have any question to ask him?

Senator MEAD. What I said, Mr. Henderson, was when it becomes necessary to confiscate—

Mr. HENDERSON (interposing). Yes; I heard, but I was thinking of the pressure that I am under every day.

Senator MEAD. All other methods will be exhausted.

Mr. HENDERSON. Yes. What I am saying is that I believe that, too.

Senator MEAD. And adequate compensation.

Mr. HENDERSON. But I know it is harder than hell to get a lot of people to accept it even now, and what I am saying is that as this seriousness deepens we have a whole new attitude of mind to look forward to, or else we will reap some very bad harvest.

Senator MEAD. Assuming that it does deepen—and we are pulling for your Americans that you were talking about a little while ago—if it is necessary to win the war, the sacrifice will be made and, I believe, willingly; but when that time comes, methods of compensation and other methods of transportation will be thoroughly explored.

I wonder if you have consulted with the Council of American Highway Agencies with reference to the immediate application of a uniform speed limit in all the States.

Mr. HENDERSON. We had our consultation with the Coordinator of Transportation, and I have here the curves, all of which I don't understand. I do understand that he has said, "Go ahead."

Senator MEAD. Right on that point, talking about the transportation problem and the Coordinator's work, years ago we had thousands of commuter and suburban trains propelled by gas and electricity, and some using coal. Many of them have been taken off. In some places they could be restored and eliminate the necessity of motorists driving into big cities from distant points daily to attend to their work.

Mr. HENDERSON. Mr. Eastman has gotten an entire new staff to work on that, and some of what they find is encouraging, but every time you find a little relief, then the demand for transport goes up. I mean, as we move to an expansion of this tremendously heavy burden of war goods, every little bit you find gets eaten up.

Senator BREWSTER. The summary of this is that you can give no encouragement whatsoever that for at least the next 2 years, probably 3 years, 25,000,000 cars that are at present in circulation have got to

get along without any more tires of any character than what they have.

Mr. HENDERSON. As far as it draws on this supply here, which Mr. Jones and the Government have taken under their review.

Senator BREWSTER. Unless we get some rubber from some other than the very optimistic estimates on which you based this present program.

Mr. HENDERSON. That is right, and in that we have scoured what is possible from guayule, and what is possible from Para, and what, as I say, we can sneak through the blockade, and everything else.

Senator BREWSTER. You are dedicating yourself to an equitable distribution of that limited quantity.

Mr. HENDERSON. Yes, sir.

Senator BREWSTER. You undergo examination at any time as to any errors which you have made?

Mr. HENDERSON. Yes, sir.

Senator MEAD. And realizing that we will have to have a lot of patching, repairing, servicing, and conservation, your agency is doing its best to keep the little fellow who renders that service in the field?

Mr. HENDERSON. That is correct.

Senator BREWSTER. You have no suggestion at this time for any further extension of your authority? You feel you have all the authority that you can wisely employ?

Mr. HENDERSON. Yes.

Senator BREWSTER. If you need any further authority—

Mr. HENDERSON (interposing). There are two things that are involved in this. One is the various war powers that are used. The other is those 9,000 rationing boards that make the decisions in the community. We are going to throw a tremendously heavier burden on them. Things that the "Great White Fathers" here in Washington couldn't begin to decide have got to get back into those communities. We can give them general guidance, because we know the over-all supply situation, we can give them the benefit of the experience that other communities are having, but it is going to lay a tremendous burden on those rationing boards and those communities.

Senator BREWSTER. And you are satisfied that that must be primarily a community function?

Mr. HENDERSON. Oh, yes, yes. Every day convinces me further. Mr. Baruch always told me that that would be true, and it has turned out to be even more true than Mr. Baruch thought.

Senator BREWSTER. And you will let us know if you do find any additional authority desirable?

Mr. HENDERSON. Yes. But it isn't a matter of that authority. It is a matter, it seems to me, of realization, of the country's realizing what it is facing and getting that social acceptance of what they have to do, particularly in the harsher periods that are to come. We are living on the fat of the land of every land right now, and the sooner individuals get off that scale of living, particularly on transport, the better off we will be.

The CHAIRMAN. We all have to make some sacrifices; in other words, everybody.

Senator Ball, do you have a question? Senator Overton, do you have a question? Senator Hughes? Senator Wiley?



Senator WILEY. Is there any freezing authority in relation to what we call boots in tires?

Mr. HENDERSON. No. We have had a doubling of the amount of repair material of all kinds, and that is not under any rationing, and we hope to keep that plentiful supply. I would like to see a lot of that going on on account of the small tire dealers. I mean, people will learn to go to the small tire dealer, or any tire dealer for that matter, for inspection, filling up the cracks, and patchings, and everything else, and they will get along a lot further.

Senator WILEY. The only hope, then, when the tires of the private owner (who isn't in class A or B) are gone is that between now and that period American ingenuity will find the answer.

Mr. HENDERSON. Yes, and as I said before, we are going to drive, obviously, on these alternate and substitute tire things. I suspect that we are going to have a lot of pain with a great deal of pleasure with that. We are already beginning to get them. But I think that American ingenuity is going to find some way to keep that thing rolling. I hope so, because we are going to have plenty of gas.

The CHAIRMAN. Mr. Clark is acting as counsel for the committee this morning. Have you any questions?

Mr. CLARK. I would just like to ask one question. You mentioned awhile back about a program for the expansion of reclaiming facilities. I was wondering if we could find much relief in a program such as that, considering that your conservation program—I think Senator Truman touched this a moment ago—is going to reduce the possible available scrap which will be necessary for reclaiming. Is that correct?

Mr. HENDERSON. But we have got, as I said, over the 3-year period, a potential supply of, I would say, not more than 1,400,000 or 1,500,000. The estimates run lower and higher. In order to process all of that scrap that we have got to get in, we will have to have an expansion of the reclaiming facilities.

Mr. CLARK. Yes; I appreciate that, but your scrap is going to be correspondingly reduced by this conservation, isn't it?

Mr. HENDERSON. Well, we haven't had need of all the rubber scrap that was available up to this time. In other words, it may seem like a paradox, but actually we haven't been using reclaimed. We have been using crude.

Mr. CLARK. And in the reclaiming process the reclaim is about 75 to 80 percent of the scrap process, is that right?

Mr. HENDERSON. You mean the rubber that is in it?

Mr. CLARK. The rubber that is in it. The scrap probably also has but 50 or 65 percent of the original amounts in it.

Mr. HENDERSON. You would get 50 or 65 percent, Dr. Longman tells me.

Senator BREWSTER. Are all the crude rubber stocks in this country now under Government control?

Mr. HENDERSON. They are under control as far as their use is concerned.

Senator BREWSTER. And is that true of all rubber in process?

Mr. HENDERSON. Yes.

Senator BREWSTER. They do not evade that responsibility by starting any in process?

Mr. HENDERSON. Now? No; I think there was. Oh, that always happens just about the time you start a program. They smell it coming and break open a bale, and things like that. You have that all around.

Senator BREWSTER. You don't think very much is escaping you by that method?

Mr. HENDERSON. I don't think so, but I wouldn't exactly know.

Senator BREWSTER. Considerable quantities were apparently turned over to private industry even during the last 2 months. Is that all guaranteed for essential military use?

Mr. HENDERSON. You see, when we have made this allocation, as, for example, this month, that is really the only authorization for processing that you get. It doesn't make any difference who has the supply. We may have to redirect some of that supply.

Senator BREWSTER. Could you take it away from one follow so that it would be available to another?

Mr. HENDERSON. Oh, yes. Not only that, but you could take it, if you had to. You don't often have to when you have taken an item under control.

The CHAIRMAN. Mr. Henderson, the committee will be pleased to have any further information that you feel should go into this record before it is closed, and the committee will now recess, subject to the call of the chairman. That call will probably be made as soon as the subcommittee returns which is now holding hearings on the west coast with regard to shipping and the magnesium plant at Las Vegas, Nev.,<sup>1</sup> at which time we will ask Mr. Jones and Mr. Arnold and several of the other officials who are connected with this rubber set-up to testify before the committee.

The committee will stand recessed.

Mr. HENDERSON. Thank you for this opportunity.

(Whereupon, at 12:17 p. m., the committee adjourned, subject to the call of the chairman.)

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<sup>1</sup> Will appear in a later part of hearings.

# INVESTIGATION OF NATIONAL DEFENSE PROGRAM

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TUESDAY, MARCH 24, 1942

UNITED STATES SENATE.  
SPECIAL COMMITTEE TO INVESTIGATE  
THE NATIONAL DEFENSE PROGRAM.  
*Washington, D. C.*

The committee met at 10:35 a. m., pursuant to call of the chairman, in Room 318, Senate Office Building, Senator Harry S. Truman, of Missouri, presiding.

Present: Senators Harry S. Truman (chairman), Tom Connally, Ralph O. Brewster, Harold H. Burton.

Present also: Mr. Charles P. Clark, acting chief counsel.

The CHAIRMAN. The committee will come to order.

Mr. Batt, you have already been sworn by this committee, I believe.

Mr. BATT. A good many times, sir.

## TESTIMONY OF WILLIAM BATT, SR., DIRECTOR OF MATERIALS DIVISION, WAR PRODUCTION BOARD

### RECOMMENDATIONS OF ADVISORY COMMISSION TO COUNCIL OF NATIONAL DEFENSE FOR PRODUCTION OF SYNTHETIC RUBBER

The CHAIRMAN. We are interested in the synthetic rubber situation, Mr. Batt, and you at one time were chairman of the Rubber Committee, I believe, for the Advisory Commission on National Defense.

Mr. BATT. Yes, I was, Senator. As I remember it from the record, beginning in June when the National Defense Advisory Commission was formed, and during that fall when I was Mr. Stettinius' assistant. I had a very keen interest in the synthetic rubber problem.

The CHAIRMAN. I will appreciate it very highly if you will give us an outline of your activities in connection with synthetic rubber while you were in that position.

Mr. BATT. In a general way, one of the first things that concerned us, amongst other possible shortages, was the question of what might happen to the United States if the rubber supply from the Indies were shut off, and we, I think in the first month we were here, got a good many of our people at work on the problem of looking into the status of synthetic rubber at that time, and the possibilities of increasing the supply.

I suppose there were a good many committees that were working under our general direction. Of course, we had a whole host of raw materials for which Mr. Stettinius and I were responsible, and my connection with it was not a detailed connection, but as an administrative question we had our people actively study what could be done to bring in as much synthetic rubber as possible.

The CHAIRMAN. At what dates were these studies being made?

Mr. BATT. Beginning, I should think, in the middle of June 1940.

Senator BREWSTER. Will you identify the exact title of the organization under which you were then functioning?

Mr. BATT. National Defense Advisory Commission. We were at that time in a purely advisory capacity. That ought to be clearly understood by this committee. We had no authority to do anything, and we went around pretty much with our hats in our hands, when it came to telling the existing agencies of government to do something.

Senator BREWSTER. That was created under the old World War statute creating such an advisory commission?

Mr. BATT. Yes; it was, Senator.

Senator BREWSTER. Whom did you advise legally and technically?

Mr. BATT. Legally, we advised the President.

Senator BREWSTER. I think there was a war council.

Mr. BATT. If I remember correctly, there were six or seven members of the Cabinet who comprised the council, and then there was the Commission which advised them, but the President, if I again remember correctly, decided not to create the council and to let the Commission report directly to him. Is that a correct statement?

Mr. LYNCH.<sup>1</sup> That is correct.

Mr. BATT. And the Commission did meet with the President from time to time over that 7 months' period of its existence.

Senator BREWSTER. So that your advice was, as a matter of fact, directed to the President instead of to his War Council?

Mr. BATT. That is right, sir.

The CHAIRMAN. As the result of these conferences, what were your conclusions with regard to synthetic rubber?

Mr. BATT. Our conclusions were that there were a great number of processes that were being experimented with by the various companies over the country, and that we ought to try to put together some kind of a coherent program for enlarging the capacity for synthetic rubber beyond that which was presently likely to go ahead by private capital.

The CHAIRMAN. Did you make a recommendation of that sort?

Mr. BATT. We made a recommendation, Senator, that approximately one hundred, I think actually 108,000 tons of synthetic rubber ought immediately to be put into production. That was arrived at in this way. We asked a number of the companies of the country, all of those who had had any experience with synthetic rubber, to make recommendations as to what they would be willing to produce. I don't remember the exact amounts, but among those who figured in that picture finally—that is, among those who made specific recommendations—were the du Pont Co., Standard Oil, Goodyear, Goodrich, Firestone. I think the proposals of those companies totaled up to approximately 108,000 tons.

Senator BREWSTER. That was Standard Oil of New Jersey, was it not?

Mr. BATT. Yes; we put that proposal to the Defense Commission, that 100,000 tons of synthetic rubber should—

The CHAIRMAN (interposing). What time was this recommendation made? I want the date on that.

<sup>1</sup> Thomas J. Lynch, Office of General Counsel, War Production Board.

Mr. BATT. I think I can give it to you exactly—September 12, to the President in the form of a letter.

The CHAIRMAN. That was September 12, 1940, that you recommended that facilities be prepared for the manufacture of 108,000 tons of synthetic rubber.

Mr. BATT. One hundred thousand. We rounded it out, Senator, to 100,000. And subsequent to that formal report a proposal came in from another one of the companies, I think the United States Rubber Co., saying that they would like to figure in that program, and if my remembrance is correct they said they would like to produce twenty or twenty-five thousand tons; so there were possible in the picture at least 130,000 tons of synthetic at that period.

The CHAIRMAN. What steps were taken to carry out this recommendation?

Mr. BATT. In the first place, we made the report to the President, and, as we would on any other situation, we consulted with the financing agency, the only available financing agency of Government, that is the Reconstruction Finance Corporation, and, of course, with Mr. Jones.

Now, it developed—this, of course, is a matter which is already well understood by the public—that there was a difference of opinion between us, on the one side, and Mr. Jones—and I understand Mr. Jones supported by the President—on the other side, as to the necessity for that large a program at that time. We were having a good deal of confusion, because the National Defense Advisory Commission, having no authoritative power and no financing power, had to take these people whose expansion projects were being considered and lead them by the hand over to R. F. C., give them its blessing, and ask the blessing of R. F. C. to negotiate some kind of contract with them. It was quite evident that was bringing about quite a good deal of confusion. These rubber companies were saying to us, "Look here! With whom do we deal? Do we deal with the R. F. C. or do we deal with you?" Our answer was, "Our authority is only an advisory authority. The only agency that can implement this whole picture is Mr. Jones," and therefore when it was so obvious to me that we were actually defeating the objective by this cross-purpose approach, in discussions with Mr. Jones, either he suggested or we suggested—I am not entirely clear at this moment because there is no record on it—that it would be better to turn that whole thing over to him, which we did.

And, so, in October, we wrapped up in a bundle all of the suggestions which were made to us by the various companies proposing an expansion, and took those over, and in a very friendly and cooperative discussion with Mr. Jones, we said, "Now, you had better carry it from here on." And that was understood by the President, as it was by Mr. Jones.

Senator BURTON. Was there but one written report from your Advisory Board?

Mr. BATT. I don't think there was ever a report except as our viewpoint was represented in these letters which have gone to the President and to Mr. Jones, and in various statements which we made at the time, because we weren't in shape to make a definitive report. They had these proposals by these various companies. They represented

different methods of approach. Some of them might, on careful examination, be acceptable methods and some of them might not. We weren't at all sure that the 108,000 tons, which was the composite total of all of these proposals, could be depended on to bring in 108,000 tons of synthetic rubber, and so all we could say at that time was that we have offers from reputable and dependable companies in the country who have had some experience in this field, to construct by various methods the total of 108,000 tons.

It had been our idea that we ought to do one of two things. Either we ought to get a group of informed technicians to study all these proposals, decide whether there was a single method which ought to be adopted by all of them or whether there should be separate approaches. We were inclined to believe that the interest of the country might best be served by starting three or four of these projects.

Senator BURTON. What I was seeking to find out was what the reports were. You mentioned a letter of September 12, 1940, to the President. Were there other letters to the President from the Advisory Board?

Mr. BATT. Only that one.

Senator BURTON. Has that been made a part of the record?

Mr. CLARK. Mr. Chairman, I think at this point we should make it a part of the record and allow me to read some extracts from it and submit it.

The CHAIRMAN. Mr. Batt, is this a copy of that letter about which you speak, to the President?

Mr. CLARK. That letter, Mr. Batt, is a copy of the original in your files.

Mr. BATT. I am sure it is a correct copy.

Mr. CLARK. This is a memorandum to the President from E. R. Stettinius, Jr. Subject: Synthetic rubber. Dated September 12, 1940 [reading from "Exhibit No. 354"]:

If the Government feels there is any possibility of our rubber supply being shut off, precautionary steps should be taken now, by building synthetic plants. If these plants are needed at all, the need may be most urgent in the next 18 months, because by the end of that time we shall have our 416,000-ton stock pile, plus normal industry stocks of 150,000 tons. Since it takes approximately 18 months to erect plants, the entire tonnage necessary to provide a margin of safety should be undertaken as soon as possible. If only a part of the total is built now, the plants could not be reproduced in less than 12 or 15 months.

The committee feels that serious consideration should be given by appropriate Government agencies to expansion as quickly as possible of our productive capacity for synthetic rubber, now 5,000 tons a year. If this is increased to 100,000 tons, it would cover our needs for strictly war purposes, and, combined with existing stocks of crude and maximum use of reclaimed, would enable the rubber industry to perform its vital functions until more synthetic rubber plants could be built.

The CHAIRMAN. That may be entered as an exhibit.

(The letter referred to was marked "Exhibit No. 354" and is included in the appendix on p. 4556.)

Senator BREWSTER. In that connection, you contemplated that perhaps four or five of these companies should erect plants under various processes, probably approximating 25,000 tons each?

Mr. BATT. Yes.

The CHAIRMAN. What finally did develop in regard to the construction of these plants? Did they adopt the 100,000-ton program?

MR. BATT. No, Senator. Mr. Jones has testified before this committee—at least he has made it perfectly clear publicly—that in discussions between him and the President that program was considered to be larger than was necessary. I don't know what happened from the time we turned that over in October until the spring of the next year.

SENATOR BREWSTER. Can you answer this, Mr. Batt? In your discussions up to the time you delivered the matter to Mr. Jones, did he indicate his agreement with your viewpoint?

MR. BATT. He felt that some synthetic rubber ought to be constructed, but he thought we were much too pessimistic in looking at the future as we did, and that our approach to so large a quantity in such an untried field was a rather wasteful one. You see, it was a very large gambling step we were proposing.

SENATOR BREWSTER. How much money did it involve, as you roughly estimated?

MR. BATT. I should suppose that that 100,000 tons would have cost at least \$1,000 or \$1,500 a ton.

SENATOR BREWSTER. It would be \$100,000,000?

MR. BATT. At least that, and Mr. Jones thought we were rather reckless in our approach.

SENATOR BREWSTER. You understood thoroughly that Mr. Jones was not inclined to go along with your 100,000-ton recommendation?

MR. BATT. Yes; we understood that, Senator.

SENATOR BREWSTER. And you would impersonalize the Presidency to the extent of leaving it to Mr. Jones to present what were the results of his conversations with the President?

MR. BATT. Oh, without doubt.

SENATOR BREWSTER. His recent statements seem to tend to lay the child on the President's doorstep and I thought it was a little unfortunate. The President has enough troubles, and I think we should let Mr. Jones say whether it was he or the President who really put the foot down on the 100,000 tons.

MR. BATT. I must say I don't think it would have changed my judgment at the moment as to the finality with which the questions were viewed, as to what authority Mr. Jones had. He was a member of the Cabinet. He was a distinguished leader in Government, and if he said that we weren't going to finance 100,000 tons, that would have settled the matter so far as I was concerned.

#### RECOMMENDATIONS OF OFFICE OF PRODUCTION MANAGEMENT FOR PRODUCTION OF SYNTHETIC RUBBER

The CHAIRMAN. I have a note here from Mr. William S. Knudsen, a copy of a note from Mr. Knudsen, in which he addressed Mr. Jesse H. Jones in this matter.

MR. BATT. Is that the one in May?

The CHAIRMAN. This is May 9, 1941. It said [reading Exhibit No. 355]:

Attached you will find the brief in connection with the production of plants for synthetic rubber. It seems to me in the light of the situation and the data shown here that we should immediately make the decision to erect plants capable of producing 40,000 tons of synthetic rubber and holding our minds open for a few months until we have better knowledge of the engineering plans, with the idea that we may want to multiply this production to 100,000 or even 200,000

tous of synthetic rubber. It is my understanding that we are not delaying the production of these plants in case the larger amount is required by taking this position now.

(The letter referred to was marked "Exhibit No. 355" and appears in full in the text, on pp. 4287-4288.)

That was signed by Mr. Knudsen on May 9, 1941, so apparently the committee hadn't entirely washed its hands of the situation even at that late date, in spite of what Mr. Steffinius said in his letter to the President.

Mr. BATT. It never lost its interest in the situation, Senator. There is a great difference between the authority which it might be assumed to have and the interest which it continued to maintain.

During those early spring months Mr. Jones or his assistants, in connection with the various rubber people, had evolved the possibility of the construction of four large pilot plants of approximately 2,500 tons apiece. The reasons for that conclusion are perfectly clear. Since these methods were comparatively untried, if you had four 2,500-ton plants using, possibly, different methods, you can find out with the minimum use of the taxpayers' money which of those ought to be expanded on a substantial scale; and as those plants were tentatively considered, the idea was that you would build 2,500 tons definitely and you would have a foundation large enough to build 10,000 tons out of each of those plants.

But, in the meantime, the Office of Production Management had come into the picture, in the spring of 1941, and the O. P. M. had a little more authority than the National Defense Advisory Commission. It could ask questions with a little more force, and we began asking again whether 2,500 tons in four units were enough, and we thought we found some possibility of the R. F. C. recognizing that they might build four 10,000-ton plants, and we urged very strongly that at least that much should be started, believing we wouldn't be losing much time; again repeating, as we had, you see, over the period, the conviction that larger production of synthetic rubber was highly desirable.

The CHAIRMAN. Hadn't some experiments been carried on by the Goodrich Co. in the manufacture of synthetic rubber previous to this time, and didn't they have a pilot plant going that was making 2,000 tons a year?

Mr. BATT. They had, Senator; that is quite right. As a matter of fact, they had a substantial development when we first began these discussions.

The CHAIRMAN. They were even making tires out of it.

Mr. BATT. They were. They were making tires. Either they or somebody gave me a synthetic rubber tire back in the fall of 1940, which is still running on one of my cars, on my daughter's car.

Mr. CLARK. Mr. Batt, do I understand you correctly to say that Mr. Jones thought that you or your agency was a little reckless in recommending 100,000 tons capacity of synthetic rubber?

Mr. BATT. I don't think I used the term "reckless." If I did, it was inadvertently. He thought it was an extravagant approach in an untried field.

Mr. CLARK. The reason I asked is that 8 months subsequent, Mr. Knudsen seems to have receded from that 100,000-ton position himself when he wrote Mr. Jones and said [reading from Exhibit No. 355]:



It seems to me in the light of the situation and the data shown here that we should immediately make the decision to erect plants capable of producing 40,000 tons of synthetic rubber and holding our minds open for a few months until we have better knowledge of the engineering plans, with the idea that we may want to multiply this production to 100,000 or even 200,000 tons of synthetic rubber.

The CHAIRMAN. I think Mr. Knudsen's idea was, if he couldn't get 100,000 tons, he was willing to take what he could get, and he took the 40,000 hoping he would get the 100,000. Isn't that it?

Mr. BATT. I suspect so.

Senator CONNALLY. It seems to me the letter says what he means. I don't think the letter is subject to a lot of extraneous, oral testimony as to what he meant. This is what he said right there.

Senator BREWSTER. The Senator hasn't heard the earlier evidence.

Senator CONNALLY. I have read the letter.

Senator BREWSTER. But if read in connection with the earlier recommendations of October 1940—

Senator CONNALLY (interposing). If you want to know what Mr. Knudsen meant, either take his letter or call Mr. Knudsen. I don't think it is within the compass of the Senator from Maine or Mr. Batt to say what he meant.

Senator BREWSTER. Will the Senator from Texas permit me to say that the counsel for our committee read into the record the suggestion that Mr. Knudsen was receding from his position. That is the only thing which I think should not be in the record. That is all I care about. I am perfectly willing for Mr. Knudsen's letter to speak for itself, but not for counsel to interpret it as a recession.

Senator CONNALLY. Counsel has as much right to interpret it as you have.

Senator BREWSTER. I am not interpreting it.

The CHAIRMAN. The committee will come to order and we will proceed with the examination.

Senator CONNALLY. I am not trying to get in a row with the Senator from Maine, but I thought this was a free forum. The Senator from Maine used up more time than the Senator from Texas, and on a priority or allocation basis I want to speak now and then.

Mr. BATT. I would like to say, Senators, for the record, on this and a variety of other points which are similar to it, there was a difference of opinion over the country in that period from June 1940 down to Pearl Harbor, as to how fast our defense program—and it was then a defense program—should go ahead. I refuse to be put in any position, if I can avoid it, of criticizing anybody over that period, because people who live in glass houses oughtn't to throw stones.

The CHAIRMAN. We are not in any sense trying to criticize anybody. All we are trying to do is get the facts.

Mr. BATT. I understand that perfectly, but I want to present my point of view toward this whole thing, if you will permit me to do it.

There were numerous decisions to which I was a party from the period of June to the end of 1940, and particularly in 1941, where we had more authority than we did before, that I have bitterly regretted, because as I see them now, they represented a shortsighted, a distinctly shortsighted point of view. Today we are faced with the fact that we exported 20,000,000 tons of prime melting scrap

over the last few years, and a good many of the furnaces of the country are down for lack of melting scrap today. I didn't oppose that exporting, as now I feel I should have.

There were many other programs on which we could have taken, and as I see it today, should have taken, a very much more aggressive position than we did. If we had conserved nickel and chrome, tungsten, by a more aggressive policy of conservation, our situation today would be a very different one. I am so vulnerable—

The CHAIRMAN (interposing). Any schoolboy's hindsight is worth more than any general's foresight, and the Monday morning quarter-backs win the game better than the ones on the field, but we want some facts so as to help those in the field win this war a little quicker, that is all.

Senator BURTON. When you or Mr. Stettinius, for your Board, wrote the letter of September 12, recommending the 100,000 tons,<sup>1</sup> did you feel that you had then consulted with the best authorities that were in the country and were making the best recommendation on the best available information there was available at that time?

Mr. BATT. Oh, yes; of course we did.

Senator BURTON. Therefore, that was your considered recommendation in September of 1940, based on the best available information in the country?

Mr. BATT. That is right.

Senator BREWSTER. When you speak of 100,000 tons, you mean 100,000 tons annual capacity?

Mr. BATT. Oh, yes.

Senator BURTON. When in October you bundled up the papers and took them over to Mr. Jones, did you accompany that by any letter or recommendation, or quit claim, or anything of the sort?

Mr. BATT. We were discussing it frequently with Mr. Jones, and therefore, there was no necessity for a letter. But sometime in November it became clear to us that we ought to let the record show that we were not assuming responsibility for that, and we wanted definitely to state to all the outside parties in interest, so there would be no confusion in their minds, that that matter was by agreement.

Senator BREWSTER. That is the letter of November 25, 1940?

Mr. BATT. Yes; November 25.

Mr. CLARK. Would you like to identify that for your own information, Mr. Batt?

Mr. BATT. Yes; that is correct.

Senator BREWSTER. That was the letter clarifying the situation as to where the responsibility lay?

Mr. BATT. That is correct.

The CHAIRMAN. That letter will be placed in the record at this point. (The letter referred to was marked "Exhibit No. 356" and is included in the appendix on p. 4558.)

Mr. CLARK. Mr. Batt, will you be good enough to say what consideration was given to raw materials when this 108,000 figure was arrived at, and as to the commitments made with regard to raw materials, and who was going to furnish them? That is back in July 1940.

<sup>1</sup> See Exhibit No. 354, appendix, p. 4556.

Mr. BATT. I can't remember that. The assumption, of course, would be that these various companies who were making proposals of varying amounts would have their sources of supply of butadiene or styrene that would have enabled them to carry through their commitment, and I have no doubt that some check was made on the adequacy of their commitments, that they could deliver it. The amounts were not large, and I wouldn't now assume that they could even then have been expected to have any great difficulty. The principal difficulty then was the kind of process that should be used.

ORDER OF WAR PRODUCTION BOARD FOR PRODUCTION OF SYNTHETIC RUBBER

The CHAIRMAN. Mr. Batt, after this Knudsen letter of May 9, 1941,<sup>1</sup> did you have any further connection with this synthetic rubber program?

Mr. BATT. Not actively, Senator. I was Deputy Director of the Production Division and only in contact with it very occasionally and indirectly. I knew in a general way what was happening, and my interest did not become more direct until the spring of this year when the War Production Board was set up and I got two jobs out of that—one, the direct appointment by the President as a member of the combined War Materials Board, which with Great Britain and the other United Nations was charged with the job of looking at the material resources of that group of nations, and seeing that they were used to the best advantage of the war effort. One of the first things we looked at was rubber, obviously. The British were greatly concerned with it. We took stock of our rubber situation, the stocks we had, the amounts which could reasonably be expected to come in, and came to the conclusion that we had a very grave problem on our hands, and that the only solution for that problem which promised any relief was the quick development of as much synthetic as possible.

As chairman of the requirements committee of the War Production Board, which is an agency charged with looking at the supplies and the distribution of available supplies in large groups amongst the various claimants—War and Navy, and so forth and so on—it seems obvious to us that the very most synthetic rubber that we could get was not going to be enough, and therefore we began asking questions right away: What has this synthetic program promised up to date? What could be done in the way of accelerating that program? And we came to this conclusion, that it wasn't too much to expect that 300,000 tons of synthetic rubber should be produced in the year 1943, as testified before your committee by Mr. Henderson, and 600,000 in 1944. Those amounts could not be produced without the best possible priorities, and I went before the War Production Board on March 3 and presented—

Senator BREWSTER (interposing). That is 1942?

Mr. BATT. 1942. I presented the acute character of the situation as we saw it, and told the War Production Board that unless synthetic rubber were given the right-of-way over everything, that the country was likely to find itself in a serious situation. Indeed, it was likely to

<sup>1</sup> Exhibit No. 355, supra, pp. 4287-4288.

find itself in a serious situation even with the best possible priorities, and the result was that the War Production Board issued this instruction:

Negotiations for the expansion of synthetic rubber facilities are to be speeded and the synthetic rubber program is to be given all necessary priority and allocation assistance for its fulfillment.

Senator BREWSTER. What is the date of that?

Mr. BATT. That is March 3.

I said to the War Production Board that it seems obvious to me that synthetic rubber had to take a place ahead of our war program except for such an unusual emergency as perhaps repairing a battleship or something of that kind, but to let it rank merely *pari passu* with guns and tanks and planes would not get the expedition which it seemed to us that the situation warranted.

Senator BURTON. Am I right, Mr. Batt, in understanding that one of the principal problems of synthetic rubber is not merely the process of producing it but the obtaining of raw materials in sufficient quantities for it?

Mr. BATT. You are quite correct. The longest time is required to produce the butadiene and styrene. The polymerization and the production of synthetic tire manufacture takes considerably less time. Indeed, styrene doesn't take so long. Butadiene is the bottleneck in the production.

Senator BURTON. Then you have a preliminary problem whenever you discuss synthetic rubber. Do we have the raw materials?

Mr. BATT. When we discuss synthetic rubber today, we are talking about butadiene.

Senator BURTON. When you made the recommendation on September 12, 1940, for the production of 100,000 tons for that year or the year forward, did you then have commitments for enough raw materials to bring that about?

Mr. BATT. I tried to answer Mr. Clark's question a moment ago by saying that when those companies, all reputable companies, agreed each to produce 20,000 or 25,000 tons, we assumed that they had enough raw materials to allow them to keep that commitment. As a matter of fact, there was no reason why they shouldn't have. Butadiene, coming substantially from the petroleum industry or chemical industry, presented no serious problems of production. However, as I explained to you, the detailed programs of each of these companies, which we had wrapped up in a bundle, as I described it, and given to the Reconstruction Finance Corporation, had not been studied too far by us, and therefore I can't say today that each of those companies had all the facilities needed for butadiene and styrene, but I have no reason to doubt that they had, because the quantities were relatively small.

Senator BURTON. When, today, you speak of 300,000 tons for 1943 and 600,000 for 1944, you now do feel you have commitments for the raw materials necessary to meet those figures; is that right?

Mr. BATT. Of course, that is a very serious job. Six hundred thousand tons of synthetic rubber in a short time, under great pressure, and 100,000 tons in normal peacetimes, are not the same animal, as of course you readily realize.

The CHAIRMAN. It is not an impossibility, is it?

Mr. BATT. It is not an impossibility; no, it is not an impossibility; but when I suggest we have set up that target of 300,000 and 600,000, I have to say that the program might be somewhat better in some respects and it might be somewhat worse, because what are we doing? We are embarking on a half-billion-dollar or a billion-dollar project, creating an industry the like of which the world has never seen. Even today I am informed the Germans, in the manufacture of synthetic tires (the last tires found), use about 30 percent of crude and 70 percent of synthetic. Now, all of these companies here, most of them who have had synthetic rubber experience, are working actively on the possibility of getting an all-synthetic tire, or one which uses certainly much less than 30 percent of crude. If we had to keep 200,000 tons of crude available for 1944 to match that 600,000 tons of synthetic which is to be produced, it would be a very much more difficult problem than it is if we may use only 100,000 tons of crude, as of course you readily realize.

I am confident that those raw materials can be brought in, but there are so many technical problems involved that it might be a little ahead in some places, a little behind in other places. But this I can say, and that is, insofar as the War Production Board is concerned, it will not allow any shortage of materials to handicap this program if there is anything which it can do to facilitate the delivery of those materials.

Senator BREWSTER. Assuming all necessary priorities, what is the approximate length of time required to construct the facilities to produce the raw materials and the making of the synthetic rubber?

Mr. BATT. Senator, these experts have all said 18 months, at the least. When we were first talking about this in 1940, they said 2 years, but Pearl Harbor is behind us. Today they say, "We are going to do everything we can to put this job through in 18 months." My guess is that some of them will do better than that.

Senator BREWSTER. Assuming the 18 months' figure, that would mean that the 300,000-ton capacity wouldn't be available until the middle or latter part of 1943.

Mr. BATT. You see we have got a pretty good start. That 40,000 tons for which contracts were awarded last year is well under way, and I think, if I remember correctly, there are about 180,000 tons that are in one stage or another of actual construction today; either construction is well under way, 50 percent under way in the case of one company, finished working drawings in another where no ground has been broken—but 180,000 tons well under way. We have a good start.

I have said every time this has come up, and the War Production Board has backed it up: "We must have 600,000 tons of operating capacity at the end of the year 1943, no ifs, ands, or buts about it." To get 600,000 at the end of 1943, you are going to have some substantial part of that finished early in 1943, and I have always said to all of those who have to do with it: "300,000 tons of synthetic has got to be delivered in the year 1943," and that is a target they are all shooting at.

Senator BREWSTER. Would you agree with Mr. Henderson that it would be a miracle if you did that?

Mr. BATT. No. I hope it can be done. I don't think we will miss it very far, if it isn't done. I am not going to admit it can't be done, because I believe it can be done.

Senator BREWSTER. You would agree that it would be unwise to issue optimistic or roseate statements that we had no rubber problem or that the people aren't going to suffer from rubber shortage in 1943?

Mr. BATT. Senator, the public, you and I, are not going to get a tire for our cars for the length of this emergency. When I said we had to have 600,000 tons in 1944, that was to keep our war effort going, and that of the United Nations, because the amount of rubber which Britain has is not large, and everything that rolls on rubber in England, in Australia, in India, is going to be furnished from the United States, and our synthetic rubber pile is going to have to do that job. Mr. Henderson emphasized the seriousness of the situation, but it ought to be emphasized every time that the question of rubber is discussed. It is a desperately critical picture.

Senator BURTON. To take up your calendar point then, let me get this clear. We need a capacity of 600,000 tons throughout 1944. Therefore, the latest date at which we could start on preparing for that capacity would be June of 1942. That would leave us the 18 months. We ought to be starting right now for the whole 600,000-ton capacity if we are going to get it in 1944.

Mr. BATT. They are, Senator. As a matter of fact, I understand Mr. Jones is going to testify before you on Friday and give you the full details of the program.<sup>1</sup> He has substantially more than 600,000 tons of rubber actually under contract or letters of intent today, and if there is anything being left undone by any of these companies, they can't be too severely criticized. I don't know of anything.

I ought to be quite accurate for the record, that in the meeting of the War Production Board on March 3 Mr. Jones testified then that he had 450,000 tons under awarded contract. I am advised that since that time very much additional headway has been made.

Senator BREWSTER. That is distinct from letters of intent?

Mr. BATT. That included letters of intent, but a letter of intent ought to be as good as a contract. If the contractor really is concerned to go ahead as fast as possible, in my judgment a letter of intent is as good as a contract, because it guarantees him against loss. If he wants to split hairs in this emergency—he may not consider it splitting hairs, I do—then from his point of view a letter of intent may not be enough on which to go ahead.

#### QUESTION OF RESPONSIBILITY FOR DELAY IN SYNTHETIC RUBBER PRODUCTION

Senator CONNALLY. Mr. Batt, I want to state that I think you are a very capable man and think you are doing a good job.

Mr. BATT. Thank you.

Senator CONNALLY. If I disagree with you on some points, it is no reflection on you, of course. You know more about it than I do, and I am just trying to find out. It is an easy thing just to recommend something, isn't it? If I had to recommend, I would say, "Give us more battleships, give us more destroyers. Some of you fellows get them for us. Give us a bigger army. Give us more airplanes,

<sup>1</sup> See infra, pp. 4521-4553, for Mr. Jones' testimony.

more ships." Now, as to this letter of Mr. Stettinius,<sup>1</sup> in which he bowed out of the picture and recommended somebody else, that is a pretty easy thing to do, isn't it?

Mr. BATT. It wasn't quite that way, Senator.

Senator CONNALLY. I have sent for the letter, to get it.

Mr. BATT. It wasn't quite that way.

Senator CONNALLY. Didn't he start off with "In order to make this a matter of record"? In other words, he was looking for something to happen in the future, and he wanted to be outside the range of fire.

Mr. BATT. No, Senator. I don't know that we had any—

Senator CONNALLY (interposing). I am speaking about Mr. Stettinius at that time.

Mr. BATT. Yes; but I was close to Mr. Stettinius and knew about those letters. I don't know that we had any intuitive consciousness that there might be a Truman committee, but apparently, we did, and I am awfully glad we wrote that letter.

Senator CONNALLY. I thought so. It looked that way. [Laughter.] It looks like a very farseeing letter to me.

Isn't it a fact—we might as well all admit it—that all of us, until Pearl Harbor happened, had a different adjustment of our lenses?

Mr. BATT. Senator, before you came in, I said that at great length, and the chairman stopped me because it might have sounded as if I were making a stump speech. I said much more detailed than you now have that we have been in a glass house. I have been on many of my decisions.

Senator CONNALLY. All of us have.

Mr. BATT. And therefore I am not criticizing anybody. I understand perfectly what Mr. Jones felt at the time, and things might have developed so that he would have been right. Unfortunately, and I am sure he regrets that as much as anybody else does, conditions have worked the other way, but he was receiving information from various high sources as to what might happen in the Far East, and there were a great many people in high strategic places who didn't believe that the Dutch East Indies would ever fall or that if they were attacked, there would be any serious disruption of shipping. Holding that point of view, it was a perfectly reasonable thing to say, "Don't speculate with the public's money." It looked as if we were speculating on these rather elaborate projects which we were proposing.

Senator, they weren't just paper projects pulled off the shelf. We thought then, and I think today, that they were sound projects, and I don't—

Senator CONNALLY (interposing). I am not questioning that.

Mr. BATT. Yield on that point.

Senator CONNALLY. I am not questioning that, but I am trying to get at this viewpoint that now that it is all over, we can all see where we ought to have been watchful at Pearl Harbor, and we ought to have kept it from happening, and we ought to have done this, and we ought to have done the other. Now, as a matter of fact, none of us anticipated the things that have happened in that short period of time.

Mr. BATT. That is entirely correct, as I said earlier.

<sup>1</sup> Referring to Exhibit No. 356, see appendix, p. 4558.

Senator CONNALLY. None of us knew that the East Indies and all the Malayan Peninsula and all the rubber-producing areas were going to be gobbled up so quickly.

Mr. BATT. Quite right.

Senator CONNALLY. And it is much easier now to say, "My God, why didn't you do so and so?" when it is the other fellow who ought to have done it. Isn't that right?

Mr. BATT. That is why I said earlier that there are so many things that we did have the responsibility for later which we didn't have adequate—

Senator CONNALLY (interposing). We are all guilty.

Mr. BATT. We are all in the same boat.

Senator CONNALLY. We are guilty. Congress was guilty 4 or 5 or 6 or 8 years ago when it didn't get more airplanes. They didn't take their heads out of the sand and look around and see what was happening in the world.

Mr. BATT. When I look at the appropriations for defense and see as of March 1941, \$22,000,000,000, and see that on June 30 that it had jumped to \$50,000,000,000, and on December 30 to \$80,000,000,000, and that as of the present date it is \$147,000,000,000, that is a measure of the increased demands that we have made on ourselves in substantially a 12-month period. We have all been guilty.

Senator CONNALLY. If we could have spent \$20,000,000,000 5 or 6 years ago, we might not have had to spend all these billions now.

Mr. BATT. Exactly.

Senator CONNALLY. We didn't do it.

Mr. BATT. Quite right.

Senator CONNALLY. We didn't do it. It is easy now for us to say, "My God, why didn't we?" Well, we didn't do it. That is all.

Now, as a matter of fact, this synthetic rubber thing has to be done, hasn't it?

Mr. BATT. There is no doubt about it.

Senator CONNALLY. We have to do it now. Before, we didn't know we had to do it. No matter how difficult, and how hard, and what the cost, we have got to do it. On the whole, are the plans going ahead as expeditiously as possible?

Mr. BATT. They are, sir.

Senator CONNALLY. It takes a plant the first thing, doesn't it?

Mr. BATT. It takes design first.

Senator CONNALLY. Well, of course.

Mr. BATT. To save time, you see, it has been obvious that all of these different programs ought to be combined in one. We ought to find out now what is the best thing.

Senator CONNALLY. That is right.

Mr. BATT. And let everybody make that one best thing.

Senator CONNALLY. That is right.

Mr. BATT. All of these people who produce synthetic rubber, who have any knowledge of its production or its utilization in tires, have been brought together, a single product has been developed, and I think the headway that has been made in the last 30 days is excellent. I have no criticism of it.

Senator CONNALLY. It takes a year to build a plant, though. doesn't it?



Mr. BATT. It will take a year and a half, I hope at the worst. I wouldn't be surprised if some of these very capable people brought those plants through in substantially less than a year and a half, and if they do, they ought to have a medal pinned on them.

Senator CONNALLY. As a matter of fact, most of the raw material comes out of either oil or natural gas.

Mr. BATT. That is right, sir.

Senator CONNALLY. And we have a very large reserve and supply of those materials.

Mr. BATT. Yes; but these are very critical types of plants to build, and they have never been built in any place in the world on this basis. You are bound to have some headaches.

Senator CONNALLY. I understand; but I am talking about the raw materials, rather than plants.

Mr. BATT. Plenty of raw materials.

Senator CONNALLY. If we can get the plants and get them functioning, we can get plenty of raw materials, can't we?

The CHAIRMAN. The State of Texas can furnish all the materials.

Senator CONNALLY. We will do our part. We are furnishing more men per head to the Army than is any other State.

The CHAIRMAN. I want to contest that with you on the Missouri situation. We furnish more men per head.

Senator CONNALLY. Well, I haven't kept up with it, but we have a good many boys in Australia right now.

The CHAIRMAN. So have we.

Senator CONNALLY. I am not making it individual, but you brought it up.

The CHAIRMAN. I was going to compliment you. We can't furnish the raw material for this rubber as Texas can.

Senator CONNALLY. We can do it and are ready to do it.

In the absence of those letters, I don't believe I care to ask more questions.

The CHAIRMAN. I have sent for those letters. They are being copied for the benefit of the press. As soon as they come back, I will turn them over to you.

Mr. Clark, do you have any questions?

Mr. CLARK. Yes. Mr. Batt, what was the basis for those conferences that were held back in June and July of 1940 by the Rubber Advisory Commission with the leading rubber manufacturers of the country for a long-range synthetic rubber program? Was it speculation as to whether our crude rubber supply was in imminent danger of being cut off or would eventually be cut off, or was it just to experiment?

Mr. BATT. No. You have given the answer in your question. It seemed to us, if anything happened to the Netherlands East Indies, as well it might, that we would be in a desperately critical situation, and at that time we looked on the synthetic rubber thing very much as you would the building of a battleship. You might spend \$50,000,000 building a battleship that you never need, but you would be awfully glad to have it. That was very much the way we approached this question.

Mr. CLARK. And Mr. Stettinius, in his memorandum of September 12 to the President, was conscious of the gravity of the situation, wasn't he?

Mr. BATT. Undoubtedly.

Mr. CLARK. And you were yourself, were you?

Mr. BATT. Undoubtedly.

Mr. CLARK. Also Mr. A. I. Henderson. Would you be good enough to identify him, Mr. Batt?

Mr. BATT. He is my deputy.

Mr. CLARK. Would you be good enough to identify Mr. S. R. Fuller, Jr.?

Mr. BATT. He is not now with the War Production Board. He was at one time the head of the Materials Division of the O. P. M.

Mr. CLARK. I have here a copy of a letter taken from the files of the War Production Board, copies of which were addressed to Mr. W. S. Knudsen, Mr. J. D. Biggers, and Mr. W. L. Batt, Sr. Mr. Chairman, I would like to read a few extracts of this.

The CHAIRMAN. All right. Proceed.

Senator BREWSTER. What is the date of that?

Mr. CLARK. The date is May 5, 1941, and is anterior to Mr. Knudsen's letter of May 9, addressed to Mr. Jones. Mr. Henderson comments as follows [reading Exhibit No. 357]:

There are attached hereto memoranda from Mr. Finger and Dr. Reid, commenting on Mr. John L. Pratt's memorandum of April 30.

I assume that is 1941.

Mr. BATT. That is right.

Mr. CLARK (continuing to read Exhibit No. 357):

I should like to take this occasion to make my own views on synthetic rubber clear.

I believe that we should proceed immediately at Government expense to erect the plants necessary to produce a minimum of 100,000 tons of synthetic rubber a year. Very probably the amount should be greater. I think that this would be in accord with the policy which we have followed in materials such as aluminum and magnesium and would be a reasonable precaution against an emergency which is likely to arise either through the closing or partial closing of the sea lanes from the East or because of a shortage of shipping which will prevent the importation of rubber even though the sea lanes remain open.

The recent proposal made by Mr. Deupree and Dr. Reid for the preparation of engineering plans for a 40,000-ton plant is merely a substitute halfway proposal which I believe may be acceptable to those who are unwilling to approve the recommendation for the immediate construction of a large plant. I believe that it will save some time when the decision, which I believe is inevitable, to erect a large plant is taken. The proposal of the Reconstruction Finance Corporation to erect four small plants to produce not more than 2,500 tons of synthetic rubber each year is also a substitute. I have approved these proposals because I believe that they are better than nothing.

I believe that the Office of Production Management should take the position that the immediate construction of a large plant should be carried out immediately and that if action is not taken at once by the Reconstruction Finance Corporation, the proposal should be submitted to the President with a strong favorable recommendation.

(The letter referred to was marked "Exhibit No. 357" and appears in full in the text above.)

Mr. CLARK. Would you say, Mr. Batt, that that was a little prophetic—that memorandum?

Mr. BATT. Well, Mr. Henderson had been with me in the old defense commission back in 1940, and it was very obvious when he wrote that letter that he hadn't changed his opinion over that period.

The CHAIRMAN. Who is Mr. Henderson?

Mr. BATT. He is my deputy, Senator.

The CHAIRMAN. Where did he come from?

Mr. BATT. Mr. A. I. Henderson comes from New York.

The CHAIRMAN. What is his business?

Mr. BATT. He was in the other war. He was a lawyer before he came down here. He came down here with us in August, I should think, of 1940. He was the liaison with the Export Control Administrator at that time, and he is entirely familiar with all the discussions that have gone on. At this particular time, he was the Deputy Director of the Materials Division.

The CHAIRMAN. He is the Deputy Director?

Mr. BATT. He was at that time and still is.

Mr. CLARK. I would like to incorporate one more document.

The CHAIRMAN. Proceed.

Mr. CLARK. I have here a copy of a memorandum, dated October 22, 1940, taken from the files of the War Production Board, with their permission, and it is to Mr. Sidney Hillman from Morris L. Cooke. Would you be good enough to identify Mr. Cooke's status in October 1940, Mr. Batt, if you can?

Mr. BATT. As nearly as I can remember, he was adviser to Mr. Hillman. Mr. Hillman was the member of the National Defense Advisory Commission responsible for labor. In some way or other, Mr. Cooke was an adviser to Mr. Hillman. Mr. Cooke was and is a distinguished consulting engineer.

(The memorandum referred to was marked "Exhibit No. 358" and is included in the appendix on p. 4559.)

Mr. CLARK. This memorandum was referred to Mr. Stettinius from Mr. Hillman on October 24, 1940.

Mr. BATT. I never saw that as far as I know until yesterday. I have a copy of it in front of me here.

Mr. CLARK. I am just going to read a few extracts. Mr. Cooke inquires [reading from Exhibit No. 358]:

Does the fact that the Reconstruction Finance Corporation is considering acting as banker to several oil, rubber, and other concerns \* \* \* relieve the National Defense Council from further activity as to synthetic rubber?

Then he states:

I do not think so.

He also states:

In planning for the further consideration of this vital material within the Commission, would it not be wise to include in our council those who are posted and yet approach the subject from the public in contrast with the private point of view?

Then he again states:

It is quite clear that the American stage is set for a rapid synthetic rubber development.

That was in October 1940:

Germany supplies say 75-80 percent of her rubber needs through a synthetic product, and Russia is rapidly going on this basis. Tires, which cause 70 percent of the demand, are now on the American market made either exclusively or largely of synthetic rubber.

So we had two men, as you state, of outstanding ability, who felt that the situation regarding the immediate getting under way of this synthetic rubber program was of the utmost urgency.

Mr. BATT. That is right.

Mr. CLARK. I would like to ask one more question. With respect to those conferences of the Rubber Advisory Commission back in July 1940, Mr. Batt, did the Standard Oil attend those conferences? Is your recollection good as far as those conferences are concerned?

Mr. BATT. Yes. I have no detailed remembrance of them, but I was perfectly satisfied with the fact that everybody was anxious to go ahead. We encountered no resistance at any point so far as I can remember. Some were more enthusiastic than others, because some were greater believers in the possibility of the commercial adaptation of synthetic rubber.

Mr. CLARK. Butadiene is one of the most important raw materials for buna-S rubber. Is that correct?

Mr. BATT. That is right. Butadiene and styrene are about in the proportion of three to one. Seventy-five percent of the composite is butadiene and 25 percent is styrene.

Mr. CLARK. That is a derivative of refined petroleum.

Mr. BATT. It can come through the chemical; that is right.

Mr. CLARK. That is right.

Mr. BATT. As a matter of fact, the beginnings of this program were to produce butadiene and styrene through the combination of a number of chemical concerns, and the raw materials adequate to produce 200,000 tons of synthetic rubber will get the butadiene and styrene by the chemical route, because it can be done more easily and cheaply as additions to existing plants. The large program from that point out was through the petroleum route.

Mr. CLARK. How about 100 octane gas? That comes from the same place, doesn't it?

Mr. BATT. We are very optimistic that the production of 100 octane and butadiene together where practicable will reduce the need for critical construction materials.

Mr. CLARK. That is, as far as that triple unit plan. Is that what you have in mind now?

Mr. BATT. That is right.

Mr. CLARK. I was thinking of the priority feature. If you had to build an independent or individual refining plant for both butadiene and 100 octane, at this point the 100-octane gas of necessity would get preferential treatment, would it not?

Mr. BATT. Not over butadiene for synthetic rubber.

Mr. CLARK. Would you give the synthetic rubber preferential or A-1-A priority?

Mr. BATT. That is right, because the War Production Board today believes, as I stated and tried to make clear earlier, that the production of synthetic rubber is the number-one requirement, and I said that it would take first place over anything except a great emergency. In the order of importance, of course, butadiene and high octane needn't compete with each other, because they actually are going to be developed as nearly as possible together.

The CHAIRMAN. Senator Connally?

Senator CONNALLY. I have nothing but just a very brief comment. I apologize for having been late. This memorandum from Mr. Morris L. Cooke seems to have been written for Mr. Stettinius. It says "Memorandum." It was probably in reply to the memorandum of Mr. Stettinius.

Mr. BATT. It was written to Mr. Hillman. I have no way of knowing what happened to it. I never saw it.

Senator CONNALLY. "From Morris L. Cooke to—"

Mr. BATT. Mr. Hillman. He was Mr. Hillman's adviser. What Mr. Hillman may have done with that memorandum I have no way of knowing, Senator, but I don't know that it would have had any influence on my judgment at the time, because he merely repeats what in effect was Mr. Stettinius' judgment.

Senator CONNALLY. He there advises that the RFC has application for \$75,000,000 worth of loans for deposit for the construction of four or five different plants.

Mr. BATT. Yes.

Senator CONNALLY. In the other memorandum he said it would be unwise to build a plant with less than \$50,000,000 outlay, because with a \$50,000,000 outlay they would get 100,000 tons, and if they build any of smaller capacity it would cost practically the same amount. Is that correct? That is in this other memorandum.

Mr. BATT. You mean this one from Morris Cooke? I haven't studied that memorandum.

Senator CONNALLY. No; Henderson's.

Mr. BATT. Oh, Henderson's memorandum.

Mr. CLARK. That is May 5.

Mr. BATT. Let's see what Mr. Henderson says. Mr. Henderson says in effect that he will take anything he can get in the way of a substantial moving forward under the synthetic rubber program. He says he approved four 2,500-ton plants because that was all that seemed practicable; four 10,000-ton plants he approves. He still doesn't think it is enough. I thought that the principal point that Mr. Cooke was making was that the Reconstruction Finance Corporation was paying too much attention to a comparatively few interests as distinguished from what he thought might be a larger public approach. I would assume that that is what Mr. Cooke was pointing out.

He also makes it quite clear that he doesn't think the National Defense Advisory Commission was relieved from further activity with regard to synthetic rubber.

Senator CONNALLY. I have reference to Mr. Stettinius' memorandum of September 12 to the President. He says:<sup>1</sup>

The committee feels that serious consideration—

No; I'll skip that down to the next paragraph—

The estimated cost of a hundred-thousand-ton capacity is \$50,000,000, including necessary raw-material plants. The cost of an annual capacity less than a hundred thousand tons, say, 50,000 tons, would not be proportionately smaller, and the time required to build the plant would be substantially the same.

So that it would have been uneconomical to have used \$75,000,000 in four or five different plants, instead of building one which cost \$50,000,000 and produce a hundred thousand tons; isn't that true?

Mr. BATT. If we had been sure, Senator, about the processes at that time, it would have been easier for us to say whether one plant should be built instead of four or five. But as I have tried to point out, there had been a good deal of experimental work done by a number of com-

<sup>1</sup> See Exhibit No. 354, appendix, p. 4556.

panies, and it was impossible for us to say at that moment whether any one of those single processes should be adopted to the exclusion of all the others. We were feeling our way. We merely felt that we ought to have a larger program for synthetic rubber.

Senator CONNALLY. I think you were doing fine, doing a lot of thinking. That is why I regret that on November 25, 1940, Mr. Stettinius dropped this on the R. F. C. doorstep and ran off and left it.

Mr. BATT. That is not a correct conclusion, Senator.

Senator CONNALLY. That is what it says here. Wait now, let's see if it isn't.

Mr. BATT. I wrote that letter, so let's don't blame Mr. Stettinius for that.

Senator CONNALLY. It bears Mr. Stettinius' handwriting. When I sign something, no matter who wrote it, I am bound by it.

Mr. BATT. I mean I am not going to duck behind Mr. Stettinius' absence. I am responsible for the letter.

Senator CONNALLY. I think you are taking a very admirable position, but we were deprived of the fact that it was from your hand. We didn't know that, you see. You see you fooled us. You made us think it was Stettinius. We might have thought more highly of it if we had known you wrote it. Here is what he says—Dr. Johnson speaking through Mr. Boswell—<sup>1</sup>

You are, of course, thoroughly familiar with these facts—

that is what you said—

However, I felt it desirable that it be perfectly clear that the Industrial Materials Division of the Defense Commission is not now considering itself responsible for developments in this matter.

Mr. BATT. Yes, sir.

Senator CONNALLY. If that is not running off and leaving it, I don't know what the English language means.

Mr. BATT. It had been taken away from us in effect early in October when all the technical material that was available had been discussed between us and Mr. Jones, for whom I have as great admiration as any of the Senators at the head table.

Senator CONNALLY. It looks to me like you left a baby on somebody's doorstep with the wrong name on it; the paternity was not disclosed. I am not complaining. That is all right, but it does seem to me that there is no just grounds when you folks who are working at it and apparently now know more about it than anybody else—

Mr. BATT (interposing). No; we don't make that contention, Senator.

Senator CONNALLY. But I do—should abandon it and run off and leave it in November 1940.

Now, if Mr. Jones does this rubber business, if he does it now or did it back yonder, he had to deal through somebody, didn't he?

Mr. BATT. That is right.

Senator CONNALLY. He has no rubber factory down there; he has a lot of jobs and a lot of things, but he hasn't any rubber factory of his own, so he had to induce somebody, some of these companies to come on here and build these plants, hadn't he?

Mr. BATT. That is right, but they were very anxious.

<sup>1</sup> See Exhibit No. 356, appendix, p. 4558, at p. 4559.

Senator CONNALLY. Wait a minute. But were they anxious? We had some testimony yesterday about that. They said, of course, when they saw the danger of losing their normal supplies of crude rubber, they were anxious to have a standby plant for synthetic rubber. They also said though, that it was a big financial hazard, that the synthetic cost considerably more than the raw rubber, and as long as they could get along without the synthetic rubber they didn't want to do it. Isn't that an element? As a businessman that was a factor.

Mr. BATT. That would have been a fact if their own capital had been involved in the picture. We felt that it was probably essential that Government funds should be used, and that, of course, was one of the reasons why we had needed Mr. Jones' help.

Senator CONNALLY. Had Mr. Jones at any time shown any reluctance or disposition to clutter this program up, delay it unduly?

Mr. BATT. Well, as I stated earlier, Senator, there was a distinct difference of opinion between us and Mr. Jones at that time as to whether so large a program as this was a wise one. May I say again, Senator, I can't talk to you the way the other Senators can, with the same independence.

Senator CONNALLY. Oh, yes, you can.

Mr. BATT. But I don't want the record——

Senator CONNALLY (interposing). You can talk to me more so. They have to run for office and you don't. Go ahead and talk.

Mr. BATT. I don't want the record to show that it is necessary for Mr. Jones to be defended from this bar against me, because I am not critical in any way, shape, or form. I feel no sense of criticism and certainly I haven't voiced any. But you asked what were the facts.

Senator CONNALLY. I haven't got any brief for Mr. Jones. I haven't ever talked to him in my life about it. I don't know anything about it. But I am just trying to develop these facts. But it does seem to me that it is most unfortunate that you folks who have taken so much interest in this and were pressing and pushing Mr. Jones, and as you say, he didn't agree with you in all of it, should then just drop it like a hot skillet and run off and leave it. Why didn't you stay in there and fight and press and get on Mr. Jones' neck and urge and demand and get somewhere with it?

Mr. BATT. We were trying to do that as well as we could, but as I said, in those days the National Defense Commission went around with its hat in its hand and it didn't tell Cabinet members what they ought and ought not to do. We have been talking with Mr. Jones many times in that interval and it was only sometime in November when people were asking publicly, who is handling this synthetic rubber, that it seemed to me that the record ought to be quite clear.

Senator CONNALLY. You did. You have said here away back in November, as soon as that light breeze sprang up, "I want to take this opportunity therefore, to make a matter of record." Whenever you say making something a matter of record, to a lawyer's mind that indicates a little alibi down the road a little piece. That is what you were getting from under, weren't you?

Mr. BATT. No, Senator.

Senator CONNALLY. All right.

Mr. BATT. We were just covering ourselves against the situation which might develop a year or so afterward when somebody would say, "Why didn't you——"

Senator CONNALLY (interposing). Go faster?

Mr. BATT. Exactly.

Senator CONNALLY. You developed my thought more clearly than I could.

Mr. BATT. Thank you.

The CHAIRMAN. Mr. Batt, in the present arrangement of the War Production Board, are you now in a position to tell Mr. Jones to go ahead?

Senator CONNALLY. They have nothing to do with it. They fore-swore it.

Mr. BATT. Oh, no, Senator.

The CHAIRMAN. I want him to answer this question.

Mr. BATT. The War Production Board and the National Defense Advisory Commission are not the same people, and I do not recognize that anyone in Government, except the President, will interfere with the decision which the War Production Board makes.

The CHAIRMAN. In other words, you now have the power and authority to say go ahead.

Mr. BATT. Yes; and of course, Mr. Jones is on the War Production Board.

The CHAIRMAN. He is a member of it.

Mr. BATT. He is a member of it and there is no difference of opinion between him and the War Production Board at all. Indeed, when I presented this matter before the War Production Board on March 3, and said that it seemed to me that 600,000-ton capacity was the minimum, Mr. Jones said that he thought the capacity ought to be larger than 600,000 tons.

The CHAIRMAN. Have you any questions?

Senator BREWSTER. Yes. Whatever may have been the case then heretofore, since the creation of the War Production Board on January—what was the date?

Mr. BATT. Early in January, Senator, I don't know.

Senator BREWSTER. In January of this year, all of the babies of every character are very definitely back on your doorstep.

Mr. BATT. Absolutely.

Senator BREWSTER. And you have no desire or suggestion that the responsibility is anywhere else?

Mr. BATT. Right.

Senator BREWSTER. And there has been no suggestion of any limitation on your powers by anyone?

Mr. BATT. None that I know of.

Senator BREWSTER. To accomplish what you shall determine to be essential.

Mr. BATT. Quite right.

Senator CONNALLY. Mr. Chairman—

Senator BREWSTER (interposing). January 12, they tell me, was the date—January 12, 1942. It is very gratifying to us that responsibility has been thus centralized.

Senator CONNALLY. Mr. Chairman, I want to say just one other word. Mr. Batt, awhile ago you said you couldn't speak as independently to me as Senators. I want you to disabuse your mind of that. There is no seniority here. We are here to get the facts. You are just as big a shot, and a good deal bigger than the Senator from



Texas ever claimed to be. We want you to talk independently and freely, and I apologize if I seemed to inject into your mind any idea to the contrary.

Mr. BATT. I am sure I have more deference for the Senator than he has for me.

Senator CONNALLY. Well, I say you must have a very exaggerated deference for the Senator, more so than the public has, I'll say.

Senator BREWSTER. I think he has entirely shown his capacity to take care of himself at bat.

Senator CONNALLY. Oh, yes.

The CHAIRMAN. Senator Burton, you had a question. Let's come to order. Senator Burton had a question he wanted to ask.

Senator BURTON. Mr. Batt, I have been greatly interested in this demonstration of an instance where the foresight was equal to or even better than the hindsight. As I understand it, this Advisory Rubber Commission was appointed some time in 1940. Can you tell me when?

Mr. BATT. Some time in June. We appointed the Committee of the Materials Division of the National Defense Advisory Commission. You see, the Materials Division was charged with the responsibility for looking over all materials, and in that look rubber seemed to be something that ought to have immediate consideration. There were, of course, similar approaches to many other materials, and a special committee was charged to see that something was put under way, and at the outset one of Mr. Stettinius' assistants had the job of pulling that thing together. I don't think I ever attended many meetings; at least, one first organization meeting where we invited everybody that we thought knew anything about synthetic rubber I did preside over. And then, after that if my memory serves me correctly, Mr. Clarence Francis, who was the head of the particular branch which had amongst other items rubber, carried on the specific negotiations. I kept just enough in touch with it to be sure that they were doing all they could be expected to do.

Senator BURTON. But this was an advisory board appointed in June of 1940 from leaders in that industry to give advice on that particular industry.

Mr. BATT. Oh, no; this committee of the Materials Division, made up of myself as chairman and two or three other members as individuals, I don't remember now who they were—simply brought together the best knowledge which it could get out of the industry and invited everyone who had had any experience in synthetic rubber to come down and tell us about it. We had individual conferences with them because there were a good many secrets in the field at that time, a good many individual conferences with them, and some joint conferences, and over those weeks we evolved the judgment that we could produce through the sum total of the recommendations made by these companies something over a hundred thousand tons.

Senator BURTON. That is the thing I want to get clearly before the committee and myself, that in June of 1940, it was foreseen that there was a need of the best possible advice on this rather untried subject, and you appointed a special committee with the responsibility for obtaining the best advice there was in the industry on that subject; that committee, meeting in June and July with the industry, did obtain advice from the best possible sources in

the industry, proceeded rapidly with it, and in September made a recommendation. Was there any other advisory board that corresponded to this board or was this the advisory board of the Administration on that subject?

Mr. BATT. I know of no other one concerned with synthetic rubber at that time, except this one.

Senator BURTON. Was there a chemical branch of the National Defense Council that had to do with this?

Mr. BATT. That was one of our branches in the Materials Division. Senator BURTON. And they concurred in it?

Mr. BATT. They worked with these group meetings because this problem was at the outset so far as butadiene and styrene were concerned, very largely a chemical problem. It hardly became a rubber problem until you got the product ready for polymerization or incorporation in tire manufacture.

Senator BURTON. That is the thing that seemed so important to me. Here was in 1940 a recognized need and most intelligently, a committee was appointed, and most intelligently the committee went to the best source of information, and most intelligently made a recommendation, and there was no other advisory board than this board and through June, July, August, and September that recommendation ripened into a written statement to the President for a plant to develop synthetic rubber at the rate of 100,000 tons a year. There was forethought from the best source that we had in the Nation, and there was the technical advice, and that was submitted to those with less technical advice, and that advice was not followed. If that advice had been followed, as given in September of 1940, the 18 months would now just be up and we presumably would be having the plant recommended.

It seems to me, unless there is some other comment to explain it, that that is an extraordinary example of having all the machinery, all the expertness, all the advice, and then it is disregarded by the amateur.

Senator BREWSTER. He doesn't care to answer that question.

The CHAIRMAN. Are there any other questions?

On Thursday, Thurman Arnold will be the witness before this committee and on Friday, Mr. Jesse Jones; and next week the committee will make an attempt to go into the request of Mr. Donald Nelson on the Guthrie matter.

The committee will stand recessed until 10:30 Thursday morning.

(Whereupon at 11:55 a. m. the committee adjourned until Thursday, March 26, 1942.)

# INVESTIGATION OF NATIONAL DEFENSE PROGRAM

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THURSDAY, MARCH 26, 1942

UNITED STATES SENATE.  
SPECIAL COMMITTEE TO INVESTIGATE  
THE NATIONAL DEFENSE PROGRAM,  
*Washington, D. C.*

The committee met at 10:45 a. m., pursuant to adjournment on Tuesday, March 24, 1942, in Room 318, Senate Office Building, Senator Harry S. Truman presiding.

Present: Senators Harry S. Truman (chairman), Ralph O. Brewster, Harold H. Burton, Joseph H. Ball, Tom Connally, and James M. Mead.

Present also: Senator Homer T. Bone; Mr. Hugh A. Fulton, chief counsel; Mr. Charles P. Clark, associate chief counsel; and Joseph Borkin, chief economist; Edward Levi and Herbert Berman, special assistants to the Attorney General; John R. Jacobs, special attorney, Antitrust Division, Department of Justice.

The CHAIRMAN. The committee will come to order.

Senator Bone, would you come and sit with the committee.

Mr. Arnold has requested that he allowed to make his statement before he is questioned. I would like to extend him that courtesy, if it meets with the approval of the committee, and I think it does, for the simple reason that he has 65 documents to go into the record, and it will probably take him all morning this morning and part of tomorrow to get through. You may proceed, Mr. Arnold. You have already been identified by this committee on various occasions.

## STATEMENT OF THURMAN W. ARNOLD, ASSISTANT ATTORNEY GENERAL

DELAY IN PRODUCTION OF SYNTHETIC RUBBER CAUSED BY STANDARD OIL—  
I. G. FARBEN CARTEL AGREEMENTS

Mr. ARNOLD. I want to introduce for the record as an exhibit a release issued by Standard Oil last night with particular reference to the following statement:

The developments made under these agreements have advanced the progress of American industry and its ability to meet the war emergency. Nevertheless the company realizes that to obtain vindication by trying the issues in the courts would involve months of time and energy of most of its officers and many of its employees. Its war work is more important than court vindication.

(The release referred to was marked "Exhibit No. 359" and is included in the appendix on p. 4560.)

Mr. ARNOLD. I wish the committee would keep that release in mind when listening to these documents. For example, one document shows that this company refused to let the British have a sample of rubber as late as 1941, after the lend-lease policy, and a year and a half after the fall of France.

Nevertheless, in appearing before this committee to testify about synthetic rubber, in fairness to the defendants, I think I should say that there is no alliance with German interests from unpatriotic motives. We believe that the cartel arrangements with Germany, which I am about to describe, are the principal cause of the present shortage of synthetic rubber. Nevertheless, these arrangements were not entered into with any desire to help Germany. The sole motive was an attempt on the part of the Standard Oil to get a protected market, to eliminate independent competition, and, finally, to restrict world production in order to maintain that control.

The shortage in synthetic rubber due to the suppression of independent experimentation, production, and distribution by this cartel agreement we are about to show the committee, is in the limelight today because the consumer realizes it more than the shortage of other basic materials. Nevertheless, it is fair to the defendants to point out that there is essentially no difference between what the Standard Oil of New Jersey has done in this case and what other companies did in restricting the production of magnesium, aluminum, tungsten carbide, drugs, dye stuffs, and a variety of other critical materials vital for the war. So long as such cartel agreements continue to exist, the inevitable result will be shortages in essential materials.

It is impossible to accomplish the purpose of a cartel, viz., to maintain high prices and to keep a tight control over the market and to eliminate independent competition without restricting production. Now, not only is production restricted but experimentation is restricted. These world cartels have made us dependent upon foreign nations for many of our most vital supplies by preventing production at home.

A justification for these cartel arrangements is sometimes made, and is made in this case in that release that I just put in as exhibit A, on the theory that by means of such agreement we get the advantages of foreign inventions. In other words, it is claimed that by keeping American enterprise out of the field and stifling American experimentation, we encourage foreign countries to do that experimentation for us. That justification has been attempted in all of the cartel arrangements which I have listed above.

The drastic shortage in critical materials today is the proof of how fallacious that justification is; and further, the story in this case as well as in the other cases, shows that the American concerns do not actually get the benefit of information from hostile countries. They give everything they have and in return they only get the privilege of stifling competition. Therefore, I wish this case to be considered not as one which singles out the Standard Oil of New Jersey, but as a dramatic illustration of the viciousness of an industrial practice that restricts production in order to dominate the market. Such practices must not be allowed to continue, because they directly hamper war production. We must uncover these practices during the war when they are hurting us and not leave them to some future Nye committee.<sup>1</sup>

<sup>1</sup> Referring to Special Senate Committee Investigating the Munitions Industry, pursuant to S. Res. 206, 73d Cong.

Furthermore, they must not be allowed to be reinstated after the war or we will find ourselves in the same situation all over again.

In general terms the arrangement that I am about to testify to was as follows: Standard Oil of New Jersey desired a world monopoly in oil and synthetic gasoline. I. G. Farben was interested in chemicals. Each wanted to be free from the competition of the other and also from independent competition. They therefore agreed that in the chemical field, which included synthetic rubber, I. G. Farben would have control. To implement that agreement, Standard Oil was to turn over any chemical processes to I. G. Farben, either the information or the patents, to any chemical processes which it discovered not directly connected with oil production. This included even the right to sell in the United States. In return, I. G. Farben agreed to turn over to Standard Oil any patents or discoveries which directly concerned oil production, including synthetic gasoline. Each company gave the other a world monopoly insofar as they were able to convey it, with the exception that Germany reserved its own market in synthetic rubber in the United States. This was done by setting up two patent pools, one for synthetic rubber and other chemicals controlled by Germany, the other for synthetic gasoline controlled by Standard Oil.

At the direction of the German interests, Standard Oil refused to license independent producers in the United States for the production of synthetic rubber. It turned over all of its discoveries to Germany, even though Germany declined to give them anything in return. The effect of this arrangement continued during the war and up to a time shortly before the filing of the information and decrees against Standard Oil.

Now, this whole case is based upon documentary evidence. I will therefore explain the details about the relationship between I. G. Farben and Standard Oil in the language of these documents. The over-all conspiracy was consummated in four documents on November 9, 1929, which I will introduce as exhibits.

Mr. FULTON. Is that 1939 or 1929?

Mr. ARNOLD. 1929.

These agreements which I am now introducing as exhibits, are known as first, the division of the fields' agreement; second, the four-party agreement; third, the coordination agreement; fourth, the German sales agreement.

(The documents referred to were marked "Exhibits Nos. 360 to 364-A" and are included in the appendix on pp. 4561-4580.)

Mr. ARNOLD. One of the parties characterized these agreements as constituting the full marriage between the companies. I give this document, using the term "full marriage," as an exhibit.

(The document referred to was marked "Exhibit No. 365" and is included in the appendix on p. 4581.)

Mr. ARNOLD. The agreement was so fashioned that no law might separate the parties in their illegal conspiracy. In accordance with this basic marriage of the 1929 agreements, the parties entered into a new agreement in September 1939, which I introduce as an exhibit.

(The agreement referred to was marked "Exhibit No. 366" and is included in the appendix on p. 4583.)

Mr. ARNOLD. This 1939 agreement divided the world properties and interests of the two companies in accordance with the basic

agreements of 1929, so far as was possible under the changed conditions of the world. More than that, this agreement of 1939 provides in effect that the parties will, in the future, make readjustments of the 1939 agreement in such a way as to carry even through the period of the war, the basic 1929 conspiracy.

Mr. FULTON. Would that apply even if the United States were a party to the war?

Mr. ARNOLD. I realize this is strong language, and I know of no other way to describe the basic and continuing conspiracy between I. G. Farben and Standard Oil than by reading from a letter, which I introduce, and I'd like to have their own language answer that question. This is a letter signed by Mr. Teagle.

(The letter referred to was marked "Exhibit No. 367" and is included in the appendix on p. 4584.)

Mr. ARNOLD (reading from Exhibit No. 367):

Referring to the series of agreements dated November 9, 1929, to which we are parties, we wish to state that it is our understanding that the discussions of the parties in connection with the negotiations of these agreements have shown that each party proposes to hold itself willing to take care of any future eventualities in a spirit of mutual helpfulness, particularly along the following lines:

In the event the performance of these agreements or of any material provisions thereof by either party should be hereafter restrained or prevented by operation of any existing or future law, or the beneficial interest of either party be alienated to a substantial degree by operation of law or governmental authority, the parties should enter into new negotiations in the spirit of the present agreements and endeavor to adapt their relations to the changed conditions which have so arisen.

Further, in the event the interest of either party should suffer from some cause which might be rectified by the change of the form of the agreements, while preserving their substance and the interest and obligations of the parties in the subject matter thereof, the parties should, and will, endeavor to revise the form of the agreements in such particulars as may be necessary to overcome the difficulty encountered.

Both parties agree that in the event of an attack by a third party brought against either of them directly or indirectly, in attempted derogation of the title to patent rights transferred hereunder, they will cooperate loyally in defense of such attack.

Mr. FULTON. That would include even the Department of Justice.

Mr. ARNOLD. I will allow the committee to draw its own inferences (reading further from Exhibit No. 367):

This letter is intended to make a record of the discussions of the foregoing subjects and of the understanding which we have of the position and intentions of the parties and of the spirit in which the parties have agreed they will approach and endeavor to carry through the readjustment of their contractual relations if such readjustment is necessary for the protection of the interests of one party and does not diminish the effective rights or interests of the other party, as fixed by the original agreements \* \* \*.

Now, in 1939 the parties made a new agreement which had in it these provisions (reading from Exhibit No. 366):

\* \* \* if it shall appear from \* \* \* reports that the division of territory of exclusive ownership between the parties as herein effected have not been equitable in its financial results as judged by the agreement of September 30, 1930—

Which in turn I will comment on was based on the 1929 agreement—then the parties shall correct the inequity in such manner as may seem most fair and advantageous at the time.

Pursuant to the foregoing, I. G., the Standard Oil Development Co., and Jasco shall make or cause to be made any formal assignments or execute any further instruments necessary to put into effect the present readjustment and any required

future readjustment of the rights and interests of the parties to the agreement of September 30, 1930.

Mr. FULTON. Was that made before the declaration of war?

Mr. ARNOLD. Yes; in 1939.

Senator BREWSTER. Well, that is after.

Mr. ARNOLD. After the declaration of war with Great Britain; yes.

It is impossible to make any mistake about the intention of this document, which is referred to as The Hague Memorandum. The principal officer of the Standard Oil Co., who was in charge of The Hague Memorandum and is also in charge of the negotiations with I. G. Farben dealing with synthetic rubber, described The Hague Memorandum in a letter dated October 12, 1939, in such terms that it is impossible to doubt that The Hague Memorandum is anything but a device for the continuation of the conspiracy, at least through the war between Germany and Great Britain.

(The letter referred to was marked "Exhibit No. 368" and is included in the appendix on p. 4584.)

Mr. FULTON. Who wrote that letter?

Mr. ARNOLD. Howard, president of Standard Oil Development Co. [reading from Exhibit No. 368]:

Pursuant to these arrangements I was able to keep my appointments in Holland, where I had 3 days of discussion with the representatives of the I. G. They delivered to me assignments of some 2,000 foreign patents, and we did our best to work out—

and I want to call the committee's attention particularly to the next phrase—

complete plans for a modus vivendi which would operate through the term of the war, whether or not the United States came in. All of the arrangements could not be completed, but it is hoped that enough has been done to permit closing the most important incompleeted points by cable. It is difficult to visualize as yet just how successful we shall be in maintaining our relations through this period without personal contacts.

Mr. ARNOLD. To show you how typical such arrangements have been, I quote for the sake of comparison, from the agreement between the Schering Corporation and the German Dye Trust, which I will introduce as an exhibit.

(The excerpt referred to was marked "Exhibit No. 369" and is included in the appendix on p. 4588.)

Mr. ARNOLD. It is simply to show that the Standard Oil was not alone in this kind of arrangement. I quote from Exhibit No. 369 in connection with the Schering Corporation and the German Dye Trust:

The existence, the content, and the details of operation of this agreement have to be kept secret by both parties notwithstanding the possible obligation of disclosing it to public officials.

Through this continuing conspiracy, I. G. Farben and Standard Oil have withheld from this country the I. G. Farben and Standard Oil developments in synthetic rubber. The I. G. Farben development in synthetic rubber is the so-called buna rubber. The requirements of the German Army and German industry are now supplied by the I. G. Farben buna rubber, and Germany's production of rubber equals her former imports. As an illustration of this, I introduce a document which supports that statement. This has freed

Germany from the necessity of running the United Nations' blockade on rubber.

(The document referred to was marked "Exhibit No. 370" and is included in the appendix on p. 4588.)

Mr. ARNOLD. As I shall show, Standard Oil delayed the use of buna rubber in this country because the Hitler government did not wish to have this rubber exploited here for military reasons. Standard delayed the introduction of buna rubber even after it had received permission from I. G. Farben to make suitable arrangements. It is even more astonishing that on Standard's own development; namely, butyl, Standard refused to license all but two rubber companies, with the exception of specialty companies.

Mr. Howard himself recognized the fact that buna synthetic rubber development came under the original agreement of 1929 between I. G. Farben and Standard Oil. Mr. Howard wrote the following on February 6, 1940.

(The letter referred to was marked "Exhibit No. 371" and is included in the appendix on p. 4589.)

Mr. Arnold (reading from Exhibit No. 371):

The interest of the Standard Oil Co. of New Jersey in the buna process dates back to the original agreement of 1929 between I. G. and Jersey. Pursuant to this general agreement, the parties undertook to cooperate in the production of certain new products from oil and gas raw materials in a jointly owned American company which was organized to administer the joint interests of the parties in these fields. The buna synthetic rubber development (to the extent the product was made from oil and natural gas raw materials) was recognized by both parties as coming within the field of this corporation.

The basic understanding of the 1929 agreement according to Mr. Howard, is that—I am quoting from a document which I am introducing as an exhibit.

(The document referred to was marked "Exhibit No. 372" and is included in the appendix on p. 4590.)

Mr. ARNOLD (reading):

The I. G. are going to stay out of the oil business proposition and we (Standard) are going to stay out of the chemical business insofar as that has no bearing on the oil business.

In another document, Mr. Teagle stated about the same time, that Standard was willing to be a junior partner in the chemical field. I introduce that as an exhibit.

(The document referred to was marked "Exhibit No. 373" and is included in the appendix on p. 4591.)

Mr. ARNOLD. I. G. Farben had the deciding voice on policy questions with respect to buna synthetic rubber.

Now as to the stopping of experimental development in the United States: Between 1932 and 1934, four rubber companies and one chemical company approached Standard desiring to secure licenses to enter into the manufacture of synthetic rubber. Negotiations in 1932 between Goodrich and Standard were subject to the supervision of I. G. Farben, which refused to accept various portions of the proposed agreement. That is found in the document I will introduce as an exhibit.

(The document referred to was marked "Exhibit No. 374" and is included in the appendix on p. 4596.)



Mr. ARNOLD. As early as 1932, Standard indicated an attitude toward the rubber companies calculated to discourage these companies from entering into the production of synthetic rubber. Standard took the position that it would not commit itself as to what the terms of the license should be. In a document which I will introduce as an exhibit, Goodrich pointed out [reading from Exhibit No. 375]:

Certain it is that little enthusiasm will be aroused in a development where the question of terms on which it can be placed in commercial production is left to future negotiations, where there is a possibility that these terms may be of onerous character as to preclude its employment or where there is even a remote chance that the result of our development will be passed on to another to the exclusion of ourselves.

(The document referred to was marked "Exhibit No. 375" and is included in the appendix on p. 4596.)

Mr. ARNOLD. Standard from 1932 to 1934 never contemplated relaxing control of the synthetic rubber development—1932 to 1942. I misspoke myself. It had two difficulties: It was afraid that the rubber companies might develop their own synthetic rubber business and free themselves from Standard's domination. Standard noted in 1936 that (I quote from a document which I introduce as Exhibit No. 376):

Following our refusal to deal with Goodyear on synthetic rubber several years ago, Goodyear went to work rather vigorously on its own behalf in this field and recently has succeeded in making some very interesting looking products.

(The document referred to was marked "Exhibit No. 376" and is included in the appendix on p. 4597.)

Mr. ARNOLD. Standard had the further difficulty that I. G. Farben would not permit them to take any positive action. As early as 1937, Standard realized that I. G. Farben was not releasing full information concerning buna because—I quote from a document [reading from Exhibit No. 377]:

The Hitler government does not look with favor upon turning the invention over to foreign countries.

Mr. FULTON. Who stated that on behalf of Standard?

Mr. ARNOLD. This document is by Dr. Hopkins, who is president of Standard Alcohol.

(The document referred to was marked "Exhibit No. 377" and is included in the appendix on p. 4597.)

Mr. ARNOLD. The refusal of the German Government was, according to Mr. Howard's testimony before an executive committee of Standard Oil—I quote from a document [reading from Exhibit No. 378]:

because of military expediency.

In 1938 this executive committee memorandum states—I am still quoting—

Mr. Howard deplored the fact that the German Government's restrictions on I. G.'s freedom of action have prevented our (Standard) making material progress in the American field, particularly as there is some indication that the American rubber companies are making independent progress.

(The document referred to was marked "Exhibit No. 378" and is included in the appendix on p. 4598.)

The CHAIRMAN. Mr. Arnold, Senator Bone has asked for permission to ask you just a question or two on this and I would like to have him do so.

Senator BONE. Mr. Arnold, did the accession of Hitler change the contractual relations of these parties?

Mr. ARNOLD. As far as these documents show, it intensified them.

Senator BONE. I am tempted to ask that question because a gentleman who is very realistic, wrote a book entitled "You Can't Do Business With Hitler." I merely wanted to satisfy my own mind that we are continuing to do business with him.

Mr. ARNOLD. In spite of the refusal of I. G. Farben to turn over this information, Standard decided to abide by the restrictions which I. G. Farben had put upon them. Mr. Howard wrote as follows on April 20, 1938 [reading from Exhibit No. 379]:

Until we have this permission—  
that was from Germany—

however, there is absolutely nothing we can do and we must be especially careful not to make any move whatever even on a purely informal, personal, or friendly basis, without the consent of our friends. We know some of the difficulties they have, both from business complication and interrelations with the rubber and chemical trades in the United States, and from a national standpoint in Germany, but we do not know the whole situation—and since under the agreement they have full control over the exploitation of this process, the only thing we can do is to continue to press for authority to act, but in the meantime loyally preserve the restrictions they have put on us.

(This document referred to was marked "Exhibit No. 379" and is included in the appendix on p. 4599.)

Mr. ARNOLD. The documents are very plain that Standard, in its treatment of the rubber companies, was attempting merely to delay matters in such a way as to discourage these other companies in the United States from going into independent production of synthetic rubber, while at the same time not committing itself to any program. Thus, Mr. Howard in a letter dated April 14, 1938, stated as follows [reading from Exhibit No. 380]:

Our primary objective in our talk with the Goodyear and Dow people was to convince them of our good faith and our willingness to cooperate with them in order to avoid having them proceed prematurely with an independent development which would make it impossible to bring them into any general plan later.

(The letter referred to was marked "Exhibit No. 380" and is included in the appendix on p. 4600.)

Mr. ARNOLD. In the very same letter in which Mr. Howard explained the desires of the Standard people to convince Goodyear and Dow of Standard's willingness to cooperate with them, Howard admitted this [reading further from Exhibit No. 380]:

The thing that is really holding us up, however, is not the lack of a plan either from Goodyear or ourselves, but the inability of our partners—that is the Germans—to obtain permission of their government to proceed with the development in the United States.

On April 20, 1938, Standard was still asking permission of I. G. Farben for authority—I quote from a document which I will introduce as an exhibit "to proceed in the preliminary way with a rather lengthy discussion here which must be had here with the various

interested rubber companies preparatory to organizing them into a cooperative group."

(The document referred to was marked "Exhibit No. 381" and is included in the appendix on p. 4602.)

Mr. ARNOLD. Standard's activities thus frustrated the creation of an American synthetic rubber industry.

Not only was the production of synthetic rubber in this country absolutely stifled by Standard's adherence to the restrictions imposed upon them by I. G. Farben which they always loyally preserved, but after 1939 when Standard received permission to enter into negotiations with rubber companies, Standard proceeded to further retard the development of synthetic rubber because of its natural monopolistic desire to keep complete domination over this industry. Standard, apparently, could not bring itself to offer terms to these rubber companies which would afford even a modicum of independence. Restrictive licensing provisions, requirements of cross-licensing back, onerous royalty terms, limitations on use and sale, and threats of patent litigation—the common patent weapons of the modern cartel—all served to further Standard's domination.

The type of licenses offered to the rubber companies is summarized in a memorandum by Dr. M. B. Hopkins of the Standard Oil Co. as of February 1, 1940. Dr. Hopkins wrote as follows, and I quote from the document which I will introduce.

(The memorandum referred to was marked "Exhibit No. 382" and is included in the appendix on p. 4602.)

Mr. ARNOLD. The most important terms of the licensing agreement are [reading from Exhibit No. 382]:

1. The rubber company takes a license to produce for consumption in its own products but not for sale otherwise. It gives us an option to buy one-fourth of its plant capacity for distribution to the trade generally.

2. A high royalty rate (7.5 cents pound) is fixed so as to make the operation practical for the rubber company only so long as the product is used as a relatively high cost specialty.

3. The rubber company agrees to license back to us its improvements.

The effect of these terms is to limit rather drastically what the rubber companies may do under their license and to leave Jersey free to itself manufacture and sell, or participate along with rubber companies in a manufacturing organization, or confine its activities to licensing and supplying raw materials. Therefore, the licenses offered may be considered as a stop-gap arrangement to permit the rubber companies to get into quick production of Perbunan for specialty use if they so desire. Beyond this, there has been no decision as to how the development will be advanced.

The character of the proposals drawn up by Standard and presented to the rubber companies is explained by the patent attorney for Standard as follows.

(The memorandum referred to was marked "Exhibit No. 383" and is included in the appendix on p. 4605.)

Mr. ARNOLD. I quote from Exhibit No. 383, an undated memorandum:

The agreement as it is now drafted will lead to the centering of all patent rights of licensees in the hands of licensor, with no outflow of those rights except to customers of licensor (and on two minor phases of patents to licensors' licensees).

All manufacturing patent license of licensees will help to build up licensors' dominating position, but no licensee will get the benefit of any other licensees'

manufacturing patent rights. In other words, this is not a cross-licensing agreement, but one in which patents are piled on patents in the hands of one centralizing company.

Senator BREWSTER. Who is that?

Mr. ARNOLD. That was the patent attorney, W. E. Currie.

The CHAIRMAN. Who is he?

Mr. ARNOLD. Patent attorney for Standard. He is also vice president of Standard Development Co., my assistant just informed me.

Mr. Howard, in commenting upon the licensing contracts offered to the rubber companies, stated on January 2, 1940—I quote from a document which I offer as an exhibit.

(The memorandum referred to was marked "Exhibit No. 384" and is included in the appendix on p. 4605.)

Mr. FULTON. To whom is he making that comment, to his own company?

Mr. ARNOLD. Yes; this is a memorandum to his own company [reading from Exhibit No. 384]:

Of the four companies to whom these proposals have been made, only Goodrich and Goodyear have been active in following them up. Discussions with these companies indicate that to the extent we meet their wishes for the liberalization of the licensing contracts we shall cut away the foundations upon which our own plans would have to rest. While we have told them that in general it is our hope to work out some joint project ultimately, we have assumed no commitment to do so and therefore at the present time they are looking at the license contract we are offering to them as though it were the only thing they would ever receive from us. One cannot blame them for being critical of many of its provisions under these conditions.

In other words, the Standard official admitted that these terms were unfair.

So far as the royalty rates are concerned, Standard admitted in a letter to the Goodrich Co. on January 10, 1940.

(The letter referred to was marked "Exhibit No. 385" and is included in the appendix on p. 4608.)

Mr. ARNOLD (reading):

The draft of agreement which I left with you was intended to permit you to manufacture synthetic rubber for specialty purposes and leave you free to participate in a common manufacturing company or not, as you may wish, when and if such a company can be organized. Quite frankly, it was our intention that the license would not be a suitable one under which to operate if the licensee expected to go beyond producing a relatively high cost specialty product.

A factor in the negotiations for a license agreement was the implied threat of patent litigation in which the combined strength of I. G. and Standard Oil of New Jersey would be pitted against the rubber companies. This was translated into reality when Standard instituted a patent infringement suit against the Goodrich Co. and filed notice of intention of suit against Goodyear at the very time that Standard was attempting to impose onerous license terms upon these companies.

(The documents referred to were marked "Exhibits Nos. 386 and 387" and are included in the appendix on pp. 4608-4609.)

The CHAIRMAN. When was that? When were those suits brought?

Mr. ARNOLD. This is October 17, 1941—that is the date of Exhibit No. 386, and Exhibit No. 387 is October 22, 1941.

The CHAIRMAN. That was while these negotiations for synthetic rubber were going on between Mr. Jones and the rubber companies?

Mr. ARNOLD. That is correct. Yes; I believe that was the very time negotiations were going on with Mr. Jones.

I have already indicated how the development of synthetic rubber in this country was stifled because of Standard Oil's partnership with I. G. Farben and the refusal of I. G. Farben to make available to this country the buna process. During the period of this refusal, Standard had developed a different type of synthetic rubber—butyl rubber. Although I am no technician and could give no expert testimony as to the merits of butyl rubber, I do have a number of documents which indicate some of its qualities and the results of some tests.

(The documents referred to were marked "Exhibit No. 388" and are included in the appendix on p. 4609.)

Mr. ARNOLD. For instance, it was reported at a discussion of butyl rubber between United States Rubber Co. and Standard that [reading from Exhibit No. 389]:

the use of butyl rubber for inner tubes is quite promising basically, since data obtained by the laboratories and the United States Rubber Co. both checked on the fact that butyl rubber is more impermeable to air than natural rubber.

(The document referred to was marked "Exhibit No. 389" and is included in the appendix on p. 4615.)

Mr. ARNOLD. As to the cost of butyl rubber, its cost is estimated by Standard—I support that with an exhibit—was between 7 and 15 cents per pound, compared with approximately 20 cents per pound for natural rubber.

(The document referred to was marked "Exhibit No. 390" and is included in the appendix on p. 4617.)

Mr. ARNOLD. In addition, it apparently can be used to make an over-all tire. No natural rubber is necessary for the carcass. Moreover, butyl rubber is made almost entirely from isobutylene, which costs about one-eighth as much as Standard's price for butadiene. This I support by two exhibits.

(The documents referred to were marked "Exhibits Nos. 391 and 392" and are included in the appendix on p. 4618.)

The CHAIRMAN. Those chemical terms are set out in detail in your statement?

Mr. ARNOLD. You will find them spelled correctly, because my assistants spelled them for me, and I can assure you they can pronounce them. As a matter of fact, this work, of course, has been done by the very able assistants who are sitting around the table, and I am here pretty much as taking the benefit of their work.

The CHAIRMAN. Proceed.

Mr. ARNOLD. The basic raw material for buna is available in much larger quantities than butadiene.

Mr. FULTON. You mean for butyl?

Mr. ARNOLD. For butyl is available in much larger quantities.

Mr. FULTON. You mean butadiene, for buna is not as plentiful as the isobutylene.

Mr. ARNOLD. That is right. I won't read these documents. I will simply introduced them as exhibits.

(The documents referred to were marked "Exhibits Nos. 393 to 397" and are included in the appendix on pp. 4620-4625.)

Mr. ARNOLD. At the very time that Standard was loyally adhering to the restrictions which I. G. put upon them and when I. G. was

refusing to turn over to Standard its buna process, Standard decided that "the best thing from every standpoint" was to pass on to the I. G. full information on Standard's butyl development.

(The document referred to was marked "Exhibit No. 398" and is included in the appendix on p. 4629.)

Mr. FULTON. Does that mean, then, that we developed in this country a synthetic rubber that is cheaper?

Mr. ARNOLD. That is right.

Mr. FULTON. And with more plentiful raw material which Germany didn't have?

Mr. ARNOLD. That is right.

Mr. FULTON. And we turned that over to Germany?

Mr. ARNOLD. That appears to be correct.

Mr. FULTON. But not to our own companies?

Mr. ARNOLD. That appears to be correct.

As a consequence, while the Hitler government, for military reasons, was refusing to make available to this country the German buna rubber, Standard sent to I. G. Farben information as to the American butyl rubber and Standard's files show that a recommendation was made that 50 pounds of sample butyl should be sent to I. G. Farben.

(The document referred to was marked "Exhibit No. 399" and is included in the appendix on p. 4630.)

Mr. ARNOLD. Thus, full information was sent to I. G. Farben in 1938, but in 1939 Standard failed to disclose full information as to butyl rubber to a representative of our own Navy's Bureau of Construction and Repair. I quote from a letter from Frolich, the director of the Chemical Division of Esso Laboratories, to Hopkins, president of the Standard Alcohol.

(The letter referred to was marked "Exhibit No. 400" and is included in the appendix on p. 4630.)

Mr. ARNOLD (reading from Exhibit No. 400):

Some time ago we received a rather detailed report on the preliminary work carried out by the Navy's Mare Island laboratories on the evaluation of the three synthetic rubbers submitted to them, i. e., buna-S, perbunan, and butyl rubber. Last week, Mr. Werkenthin, of the Navy's Bureau of Construction and Repair in Washington, spent the day with us here at Bayway to discuss the Mare Island laboratories' results, and to get some first-hand information on the compounding and general handling of these synthetic rubbers.

Mr. Werkenthin was particularly interested in ascertaining how far we had proceeded in the development of butyl rubber. He seemed rather favorably impressed by the properties of this product as brought out by the movie and with the work in general, but perhaps he was somewhat disappointed to find that we are not closer to commercial production as he seems to be particularly impressed by the properties of butyl rubber.

Because of the possible application of butyl rubber to some of the Navy's requirements, Mr. Werkenthin had been instructed also to look into the manufacturing process. You will recall that I took up this question with you before his arrival. As agreed upon, I took Mr. Werkenthin over to the "K" plant when it appeared that I could not very well steer his interest away from the process. However, I am quite certain that he left with no picture of the operations other than that a considerable amount of distillation and refrigeration is involved in the handling of the light hydrocarbons, and that refinery gas rather than straight butadiene is the raw material.

Senator BREWSTER. What was the date of that?

Mr. ARNOLD. That is dated November 21, 1939.

Until the consent decree, which I will discuss later, which we signed yesterday, Standard, with the exception of testing arrangements made with two rubber companies—we have been unable to find any licenses—and some specialty users, has held back on the use of butyl rubber, even in this time of rubber shortage. It is difficult for one to explain this holding back in view of the reports in Standard's own files concerning the good qualities of butyl rubber. I think we can understand the tremendous pressure which undoubtedly has been exerted upon Standard by various companies who did not wish to retard the development of synthetic rubber but nevertheless wished to make sure that they are given priority in its development. It may be that the pressure of such companies as General Electric to delay the release of samples of butyl by Standard to other companies has played its part. I refer, for instance, as an example of this, to a letter dated July 24, 1940, signed by Mr. Howard.

(The letter referred to was marked "Exhibit No. 401" and is included in the appendix on p. 4632.)

Mr. ARNOLD (reading):

Mr. Reed, chairman of General Electric—

Mr. FULTON (interposing). Is that the Philip Reed who is in the War Production Board now?

Mr. ARNOLD. Yes.

Mr. FULTON. In charge of copper, lead, and zinc?

Mr. ARNOLD. I don't know what he is in charge of [reading further from Exhibit No. 401]:

Mr. Reed, chairman of General Electric, called me on the telephone in Washington today to advise that they are ready to accept our letter agreement on butyl rubber in the same form it has been accepted by Firestone. Mr. Reed pointed out that Firestone had a 3-month head start over the industry in general, whereas General Electric would have only about 6 or 7 weeks, if we actually release samples broadcast on September 15. I told him that I did not know what we would actually do in this connection. Pressure might require us to deliver the samples broadcast as early as September 15, but if we had our own way, we would probably delay general distribution still further.

Senator BALL. What is the date of that?

Mr. ARNOLD. This is dated July 24, 1940. There never has been any general distribution of samples up to date.

Mr. FULTON. Was that not about the time that the Stettinius group in the O. P. M. were trying to encourage the development of synthetic rubber?<sup>1</sup>

Mr. ARNOLD. I have forgotten the exact date. It was about the time; I have read that in the newspapers.

The CHAIRMAN. What is the date of this?

Mr. ARNOLD. July 24, 1940.

The CHAIRMAN. That was at the time they were endeavoring to get together on synthetic rubber.

Mr. FULTON. And I think that September 15 date closely approximates the date when the companies expected to produce synthetic rubber, were requested to furnish their preliminary specifications and drawings.

Mr. ARNOLD. I think so, to. In any event, no samples have ever been distributed.

<sup>1</sup> See *supra*, pp. 4283 et seq.

Mr. FULTON. Has Mr. Philip Reed been requested by you to explain why they were desirous of obtaining more than a 6- or 7-week lead over the other industries?

Mr. ARNOLD. No.

Mr. FULTON. By what right did General Electric request such a thing?

Mr. ARNOLD. I have no idea. I think the document speaks for itself. I would prefer not to give the inferences. I think the committee should make whatever there are.

Mr. FULTON. Has Mr. Reed been asked to explain it?

Mr. ARNOLD. No; Mr. Reed has not been asked to explain it.

Mr. FULTON. Has he offered any explanation?

Mr. ARNOLD. Mr. Reed hasn't seen us about the matter. Mr. Reed's company is one of the defendants in another suit and we haven't seen Mr. Reed about this at all.

The CHAIRMAN. We will give Mr. Reed a chance to explain to this committee. If he will explain it, that will be all right.

Mr. ARNOLD. I will conclude with my quotation: "I telephoned my office to have Mr. Murphree or Dr. Frolich"—Dr. Frolich is the director in the Esso Laboratories—"telephone to Dr. Coolidge"—he is a chemist with General Electric—"immediately and arrange for whatever samples Dr. Coolidge wanted so as to avoid any unnecessary delay."<sup>1</sup>

This refusal to facilitate the development of synthetic rubber by giving samples persisted even after Pearl Harbor. A memorandum dated January 5, 1942, which I am introducing as an exhibit, indicated the unwillingness of Standard to cooperate with the Standard Co. of Indiana in making available information for compounding, curing, and testing butyl rubber, so that the Standard of Indiana might carry out the same procedure on butyl rubber with which they had been experimenting on a small scale.

(The memorandum referred to was marked "Exhibit No. 402" and is included in the appendix on p. 4632.)

Mr. ARNOLD. The last paragraph of that memorandum which I have just introduced states as follows:

I told Mr. Plummer that it was my understanding that it would be a violation of some of our agreements for us to release such information to Indiana.

I interpolate that this shows the whole Standard dissolution had some effect—

and suggested that in case he did not wish to send a sample of his material to us for testing that he might submit it to Firestone, U. S. or Acushnet. Mr. Plummer stated that he preferred not to give any samples to anyone at this time and asked whether we would be willing to send him a pound or two of butyl rubber. I told him I was sure we would be willing to do so, and if you agree that this procedure is in order, will you please send him some?

Following this memorandum, this letter dated January 13, 1942, is to be found in the Standard files, and that I will introduce.

(The letter referred to was marked "Exhibit No. 403" and is included in the appendix on p. 4633.)

Mr. ARNOLD. This is after Pearl Harbor [reading]:

I have phoned Mr. Plummer and have told him that our contract obligations applied to samples to butyl as well as to information. Further, that although

<sup>1</sup> See Exhibit No. 401, appendix, p. 4632.



we were no longer obligated not to give samples to others, we have made a uniform policy of not doing so and hence, would prefer not to give one to him at the present time. Mr. Plummer stated that this would not inconvenience them appreciably since they had made arrangements to have their product tested by Naugatuck anyway and Indiana really did not need a sample of butyl.

The CHAIRMAN. Mr. Arnold, I think that when you get through with this procedure and we have finished hearing you, I will ask the Standard if they want to make any explanations on these things, and if they want to be heard, the committee will be glad to give them a chance to be heard. We have been giving them and you time on this thing for the purpose, we hoped, of getting the synthetic rubber thing, so far as Standard was concerned, worked out so these other companies could go to work. It is perfectly apparent that the whole of Standard's processes and patents have not been turned into the pool. We will give them a chance to explain that.

Mr. ARNOLD. I want to emphasize that this is only a typical case of the operations of a cartel. This is not a unique case at all, and I think that the Standard decree now accomplishes everything. I have only one substantial complaint about the Standard decree which I may take up later, but aside from that one complaint which is a minor detail, it accomplishes everything.

The CHAIRMAN. I am reliably informed that there was no effort on the part of the Standard to furnish these patents and this information they had and turn them over to Mr. Jones and the rubber companies who were anxious to go into the synthetic rubber business, on butyl or any of these other patents, until it was discovered that this committee might dig into the reasons for their not doing it; and that the only reason you were able to get a supplement was because this committee went into the matter.

Mr. ARNOLD. At the time that Standard was refusing to make available samples of its butyl rubber to English and American concerns, it had already sent full information to I. G. Farben and in answer to an inquiry of an Italian company, it referred the Pirelli Co. to I. G. Farben in accordance with the instruction of Mr. Howard. This is going back now to December 9, 1940.

(The document referred to was marked "Exhibit No. 404" and is included in the appendix on p. 4633.)

Mr. ARNOLD. I quote:

The rights for butyl rubber for Italy are held by the I. G. Farben A. G. of Germany.

Undoubtedly another factor in the delay in Standard's exploitations in butyl rubber has been the desire of Standard to maintain its monopoly position over any general development. On November 6, 1939, Frank Howard wrote—I quote from the next exhibit.

(The document referred to was marked "Exhibit No. 405" and is included in the appendix on p. 4633.)

Mr. ARNOLD (reading):

\* \* \* There is a considerable temptation to publicize this butyl rubber development and to seek contact with the rubber companies on it immediately, but a sounder policy apparently is to confine the development to our own organization up to the point of standardized operation of our pilot plant about next January or February. This will give us an opportunity to feel out the whole synthetic-rubber situation in the United States with the du Pont Co. and with the four leading American rubber manufacturers through our contacts with

them on the buna matter. The additional time is also desirable from a patent standpoint.

On March 7, 1940, Mr. Howard wrote in connection with negotiations with rubber companies—I quote.

(The letter referred to was marked "Exhibit No. 406" and is included in the appendix on p. 4634.)

Mr. ARNOLD (reading) :

I believe we are far enough advanced with our butyl-rubber development so that we could now bring this into the discussions, although our natural course would be to hold off sometime longer on any discussion of butyl rubber.

On June 13, 1940, Mr. Howard wrote—I quote from the next exhibit.

(The letter referred to was marked "Exhibit No. 407" and is included in the appendix on p. 4635.)

Mr. ARNOLD (reading from Exhibit No. 407) :

Bob Vanderbilt asked me for a sample of butyl rubber for test work. As you will have noted from the agreements with Firestone and U. S. Rubber, it has been decided that it is not wise for us to put our samples before September 15. This is for the purpose of giving our company, in association with Firestone and U. S. Rubber, a further opportunity to protect ourselves patentwise.

There is no doubt that when butyl-rubber samples are released there will be a flood of patent applications by independent persons, seeking to cover various methods of compounding and using butyl rubber. These patents are going to be a nuisance and a burden to us, and we would like to minimize this as far as possible.

As usual, the device for control was uppermost in Standard's mind rather than the development of the product. This was true even though Standard recognized in a letter of June 4, 1940 that [reading from Exhibit No. 408]—

from the standpoint of very large production within the shortest possible time, butyl rubber is especially important.

(The letter referred to was marked "Exhibit No. 408" and is included in the appendix on p. 4635.)

Mr. FULTON. And that is the rubber which you said is the cheapest and for which there was the greatest supply of raw material?

Mr. ARNOLD. And in which the Navy is interested.

Mr. FULTON. And the one which until yesterday was not freed by the Standard Oil?

Mr. ARNOLD. Yes.

The limited number of companies allowed to cooperate with Standard in the butyl development is indicated by a letter dated February 4, 1941, in which it is stated that the Firestone Tire & Rubber Co., U. S. Rubber Co., General Electric Co., Acushnet Process Co., United Carbon Co., Professor Urey, of Columbia University, and Dr. T. P. Sager, of the National Bureau of Standards, are the only persons who have received samples of butyl rubber from the Esso laboratories.

(The letter referred to was marked "Exhibit No. 409" and is included in the appendix on p. 4637.)

Mr. ARNOLD. It is further stated that, as opposed to the exploitation of buna rubber at that time [reading from Exhibit No. 409] :

In the case of butyl rubber the joint programs aim at developing outlets for products which are being manufactured by us and very little information is given out on the manufacturing process involved.

On May 21, 1941, in a letter signed by M. B. Hopkins and addressed to Mr. W. R. Carlisle of Westminster, London, the following is stated [reading from Exhibit No. 410]:

We have not yet made butyl rubber samples available to manufacturers generally in the United States and for this reason as well as because of the local need for current production, I am sorry that we cannot supply F. A. Hughes & Co. with samples for experimental purposes. We would like to maintain the interest of F. A. Hughes & Co. until a conclusion can be arrived at as to a possible partner in England in the rubber development but realize that this may be difficult under the circumstances.

(The letter referred to was marked "Exhibit No. 410" and is included in the appendix on p. 4637.)

Mr. ARNOLD. Despite the fact of Standard's recognition of the importance of the development in butyl rubber, on November 18, 1940, according to a memorandum by Mr. Howard, Standard refused to license Humble on any basis other than one which would provide [reading from Exhibit No. 411]:

\* \* \* any synthetic rubber products manufactured by Humble for general sale should be sold, not in competition with, but in coordination with, the sales by other Jasco licensees. Under the United States patent and antitrust law as it now stands, the right of Jasco to attempt to fix sales prices or conditions is extremely circumscribed, and to meet the necessities of this situation Jasco proposes to confine general outside sales to a single agent, with whom it will make direct agreements. This policy is not in any way a discrimination against the Humble Co., but is a uniform Jasco policy, which it has already carried into effect by a formal agreement with Firestone and letter agreement with the United States Rubber Co.

It is hoped that in view of the foregoing, the Humble Co. will find it possible to obtain the consent of its lawyers to the acceptance of chemical license contracts from Jasco containing suitable lawful restrictions upon the sales of the patented products.

(The document referred to was marked "Exhibit No. 411" and is included in the appendix on p. 4638.)

Mr. ARNOLD. This was Howard's answer to the Humble contention [reading further from Exhibit No. 411]:

\* \* \* that they could enter this field only on a completely independent basis, that is, without agreements which would limit their rights of manufacture or sale of the products. This position was understood to have been taken by Humble counsel on the assumption that Humble had an unlimited license under the mutualization contracts with Standard Oil Development Co. to proceed with butyl rubber and that it was therefore unreasonable for Humble to be expected to restrict its activities in this field, if it chose to enter the new field voluntarily with an investment of its own capital.

The committee will understand that the ramifications of this cartel arrangement are enormous and that synthetic rubber is only a part of the larger story. I cannot, within any short time, sketch all of the cartel arrangements which flow even from the synthetic rubber portion of the cartel. I am only giving you 65 documents. We have examined about 40,000 documents. Nevertheless, it is impossible to understand the synthetic-rubber situation unless it is viewed as part of a gigantic cartel structure affecting Standard's relationship to numerous other companies, and I think it is important that we look into a few instances of the ramifications of this cartel.

For instance, there is no doubt that one factor in the delay in Standard's synthetic-rubber program was Standard's cartel obligation. On

October 16, 1939, after the Hague memorandum, I. G. Farben gave the following instruction to Standard [reading from Exhibit No. 412]:

As discussed between us, we ask you to approach Wilmington before starting to exploit buna patents.

Wilmington means du Pont.

(The document referred to was marked "Exhibit No. 412" and is included in the appendix on p. 4639.)

Mr. ARNOLD. This instruction was given even though, in the same telegram, we find the following [reading further from Exhibit No. 412]:

Referring to your question with respect to technical information about buna, we have to inform you that under present conditions we will not be able to give such information.

In accordance with the I. G. Farben instructions, the Standard memorandum on November 6, 1939, states [reading from Exhibit No. 413]:

We have assumed to the I. G. the obligation to discuss with the du Pont Co. the entire situation before deciding on our policy here and these discussions will take place very soon.<sup>1</sup>

(The memorandum referred to was marked "Exhibit No. 413" and is included in the appendix on p. 4640.)

Mr. ARNOLD. A further telegram of November 14, 1939, from Frank Howard to I. G. Farben reads as follows [reading from Exhibit No. 414]:

Termeer Ringer pursuant to my promise have discussed buna question with du Ponts before talking to others. Their first position was that they would be willing to consider matter only on basis of exclusive license for straight royalty and even then only if we could not find any other satisfactory method of developing the process here. They have just advised today however that they would like to consider taking a nonexclusive license on any fair basis on which we would offer such licenses to others. We shall continue to keep in contact with them.

(The telegram referred to was marked "Exhibit No. 414" and is included in the appendix on p. 4641.)

Mr. ARNOLD. Of course, one of the reasons for the cartel obligations toward du Pont was because du Pont had developed a synthetic rubber product in 1931 which is today called Neoprene, and in an endeavor to control all possible sources of synthetic rubber, Standard and I. G. had obligated themselves not to open the field of synthetic rubber in the United States without first offering a share to du Pont.

Mr. Clark, vice president of Standard Oil, wrote to Mr. Teagle as follows [reading from Exhibit No. 415]:

The petroleum industry is rapidly becoming a chemical industry, and has, of course, available to it the largest supply of raw material, both in its natural gas and the crude oil. Looking to the future, it is evident that the manufacturing and marketing interests of the large refining companies will clash with the large chemical companies. We have our working agreement for the development of the high pressure process with the I. G. and also are indirectly connected with du Pont through the Ethyl Gasoline Corporation. It would seem, therefore, perfectly natural for us to have a close working agreement of some sort with the Union Carbide & Carbon Co., all with the view of later having the four companies joined together for the development of allied processes and products under agreements, subject to change from year to year as conditions would require. The Union Carbide & Carbon Co. and the du Ponts are two of the largest chemical manufacturers in the United States.

<sup>1</sup> In this connection see excerpt from Exhibit No. 405, supra, p. 4321.

(The letter referred to was marked "Exhibit No. 415" and is included in the appendix on p. 4641.)

The CHAIRMAN. Mr. Arnold, it is perfectly apparent that you are not going to be able to get through, and this seems to be a convenient breaking place. I want to give the Senators a chance to ask you some questions before we adjourn. We have to go to the Senate by 12:15, and for the next half hour I would like to give the members of the committee a chance to discuss this thing from a question standpoint with you and then we will proceed with the formal statement in the morning at 10:30.

Are there any questions?

#### EFFECT OF PATENT POOLS ON COMPETITION AND PRODUCTION

Senator BONE. I would like to ask Mr. Arnold about one matter that I think is important. Are these formulas for the production of synthetic rubber now all of record in the Patent Office?

Mr. ARNOLD. The patents are all of record, but the know-how is not of record. With respect to that, in negotiations for the consent decree we suggested that the Standard Oil allow a department representative access to laboratories to be sure that the know-how was free to everybody and that in licensing the patents they were actually licensing everything—the information, the know-how, as well. That was objected to on the ground—and I can see, frankly, that it has some validity—that they didn't want a department representative in there that might give secrets to others. After long negotiations we gave that, retaining the right to act to enforce the decree, and that is the way the decree now reads.

Senator BONE. I asked that question because I wondered if the material set out in the patent, that is, the facts set out in the patent which the Government grants, would be in such detail that an expert chemist could make the vital, necessary chemical facts available to any outfit that wanted to manufacture rubber material, such as tires. Perhaps one of your staff might answer that.

Mr. ARNOLD. I think, since the work was actually done by the staff, I will ask Mr. Berman to give his opinion on that.

Mr. BERMAN.<sup>1</sup> I doubt that. You have to know the know-how and technical information in order to be able to operate under the patent.

Senator BONE. I wondered how the holder of a patent protected himself in infringements when he refrains from setting out in his patent the thing he wants to protect. That is a legal question, but I am very curious about it.

Mr. BERMAN. None of these patents is of sufficient detail to set out all of the working conditions necessary to operate the patent completely. For example, very small variations in the purity of the raw material will make all the difference in the quality of the final product.

Senator BALL. In view of that, how effective is this pool going to be?

Mr. ARNOLD. Well, I have, frankly, a belief that the effect of this prosecution is going to be to show the futility of this sort of thing, and I believe that in the future—and I hope I am right—with some

<sup>1</sup> Herbert A. Berman, special assistant to the Attorney General.

supervision on the part of an active antitrust division, this isn't going to happen again. I have always contended that restrictions of production were a natural kind of economic disease by people who wanted to maintain themselves in a dominant position, and you do need a policeman on the beat all the time. I think, with this decree, in spite of that weakness that I pointed out, that this result will be obtained. Frankly, I wouldn't have signed it if I hadn't thought so.

Senator BONE. Under this decree, Mr. Arnold, is it possible to make available the know-how that you referred to?

Mr. ARNOLD. To acquire it. The only thing that we didn't get was the right of a man to go to the laboratory. While I wanted that, I could see some reason for not having him there. That might possibly leak some confidential information. In any event, after considerable deliberation, we acceded to that.

Senator BALL. Are the patents on this butyl rubber included in the pool?

Mr. ARNOLD. What?

Senator BALL. Are the butyl rubber patents included in the pool?

Mr. ARNOLD. Everything is included. I want to say this, now, for these companies, because these memoranda speak for themselves and we have the testimony which is pretty clear. I want to say for these companies that they have, so far as it is possible in the patents, stripped themselves of the power to maintain these restrictions. It will cost them somewhere between five and ten million dollars to do it, which I think is one of the things which justifies the comparatively small fines, which were also the subject of much dispute.

I do think that it should be said here and now that I think that this thing has been done away with, and I think the importance of this hearing is not to bring Standard Oil into the limelight, but to bring this kind of arrangement into the limelight so that other people will consider it very hazardous to do it again. From 1926 to 1933 everybody was making these arrangements. The drug people were; the magnesium people were; and you can go right on through the cartel of most American industry. It just seems that in a period of non-enforcement of the antitrust laws we developed these antiproducer restrictive practices which brought us to the state where we are, and we must not take any one company and hold them up any more than anybody else, for it was the temper of the times itself which didn't enforce the antitrust laws. We are suffering for it today, and I consider that this is the very center, the foundation, of our failure to produce basic materials: high profits, low materials.

Senator BALL. Do these documents you have examined show approximately when Standard Oil could be reasonably certain that I. G. Farben was working in close collaboration with the German Government in using the cartel set-up?

Mr. ARNOLD. Nineteen thirty-four was the first statement in the documents which I have introduced showing that the German Government was working in close collaboration with I. G. Farben.

Senator BALL. Is there any evidence in those documents that Standard Oil made any attempt to bring that fact to the attention of our Government?

Mr. ARNOLD. Well, the evidence is to the contrary.

Senator BALL. They didn't disclose it until it was enforced.

Mr. ARNOLD. Do you know of any?

Mr. BERMAN. I believe that it was disclosed in some of the contractual arrangements: not in complete detail.

The CHAIRMAN. Senator Brewster.

Senator BREWSTER. In the criticism which you have obviously leveled at this course of procedure, I take it you also assume the responsibility of pointing out how, within the law, a comparable development might have been economically feasible?

Mr. ARNOLD. As these documents show, had other people been able to experiment with synthetic rubber, my belief is that we would have developed enormously in synthetic rubber. Now, of course, I don't know what Goodyear could have done with it. I don't know what Dow could have done with it. But if we look at any other product—if we look at the automobile industry, we can see what free enterprise and experimentation is capable of, and I am perfectly sure that had this thing been opened we would have developed it as Germany did.

Senator BREWSTER. There are two angles. One is the German aspect, in which I gather you feel that the Standard Oil were more or less taken for a ride by the Germans.

Mr. ARNOLD. That is right.

Senator BREWSTER. They paid them \$30,000,000 for this original process.

Mr. ARNOLD. They weren't taken for a ride in this sense. You see, Standard Oil was not trying to aid or assist Germany. Standard Oil was seeking for domination of the market. It was looking to its own future monopoly position, and that future monopoly position was maintained by this cartel arrangement. In other words, they didn't have a lot of German competition and a lot of independent companies getting this stuff and making these arrangements with Germany. They kept tight control of the situation.

Senator BREWSTER. From the time the Germans advised the Standard, in approximately 1935, that the German Government from then on was financing this experimentation and indicated that the Standard wouldn't get the information, the Germans in large measure declined to give them the information; did they not?

Mr. ARNOLD. We have no documents which show that the German Government was financing anything. Our document is a statement from Mr. Howard that from a military point of view it was considered inexpedient for the Hitler government to send the information to the United States.<sup>1</sup>

Senator BREWSTER. Isn't it a fact that the German Government was financing this synthetic rubber study in large measure from 1935?

Mr. ARNOLD. We are not experts on that. I mean we have been investigating this Standard Oil situation. I don't think we have first-hand information on that.

The CHAIRMAN. I think I. G. Farben Co. in Germany is the government, as far as that is concerned.

Mr. ARNOLD. I am inclined to think that you are right, but I am speaking now from general information—one of my men said it was—and not from any specific information.

<sup>1</sup> See Exhibit No. 378, appendix, p. 4598.

Senator BREWSTER. I think there has been other evidence before our subcommittee which indicates that was the fact, and the Germans used that as one of the reasons that they had to begin to hold out on the Standard in giving them information about discoveries.

Mr. ARNOLD. I noticed that in your hearings, too.

Senator BREWSTER. You have seen that evidence?

Mr. ARNOLD. Yes; but I am really here testifying to what I have seen, quite apart from your hearings.

Senator BREWSTER. Yes. I gather that you feel that our patent law is in need of some revision.

Mr. ARNOLD. I do; but with respect to this kind of situation, I want to point out that on the basis of the decisions of the Supreme Court, you can break up a patent pool. If a single patent is owned by a company, there is nothing that the antitrust laws can do about it if they refuse to license it, but there are scarcely any industrial processes that we run into that can be controlled by a single patent. Now I can get a monopoly under the patent law on this knife—it has a little calendar on it—without any question, but the actual situation is that you can't control industrial processes except in this way: You have to get what they call the basic patents. I don't know what they mean by basic patents, except in the patents which will interfere with other people, which will prevent other people from making improvements, and then you cross-license the other people and pretty soon you get all the patents, and you can't do that under recent Supreme Court decisions.

Further than that, as I interpret the *Morton Salt case*<sup>1</sup>—I am not always right in my interpretation of the Supreme Court, but I think I am in this case—which is the basis for this decree, the use of patents to restrain competition or to restrict production will be penalized by preventing an infringement suit and otherwise by preventing the royalties to be collected until the effect of that restraint has been dissipated. I will say it now—the decree will come tomorrow—that it is on that basis that the Standard Oil of New Jersey has, and I think should be given full credit for, accepted that theory and licensed its patents to the Government royalty free at the cost of possibly \$10,000,000. I think their release says \$6,000,000, but, in any event, they have licensed to the Government royalty free and have agreed to compulsory licensing after the war, so this rubber industry will be free at reasonable rates, which will be fixed on appeal to the court. That does cure the situation without a law.

I do think, in addition to that, that amendment should be made to the patent law.

Senator BREWSTER. When you say "royalty free," do I understand now that covers all Standard processes concerned with synthetic rubber?

Mr. ARNOLD. All those processes which are pooled together with butyl. We haven't any right to ask the Standard to license royalty free on a product they haven't been using in violation of the law. So this royalty free includes all these patent pools pooled with the Standard-I. G., and I think that covers all rubber.

Senator BREWSTER. It covers both buna and butyl?

Mr. ARNOLD. Yes.

<sup>1</sup> *Morton Salt v. G. S. Suppiger Co.*, 31 F. Supp. 876; 117 Fed. (2nd) 986; reversed 314 U. S. 488.



Senator BREWSTER. Is that correct?

Mr. ARNOLD. Yes.

Senator BREWSTER. Up until this time there had been reservation in the Government pool, hadn't there, regarding butyl—up until yesterday?

Mr. ARNOLD. Never had it.

Senator BREWSTER. Yes; Standard had never put butyl into the pool. Is that correct, as you understand it?

Mr. ARNOLD. I think they never licensed anybody for butyl at all.

Senator BREWSTER. You mean even through the pool arrangement?

Mr. ARNOLD. Oh, no; not even samples went out. Maybe I don't understand your question.

Senator BREWSTER. I am thinking of the last 2 months, since December and Pearl Harbor, when there was this rubber pool. I think we should be clear. As far as you know, butyl was never put into that?

Mr. ARNOLD. No.

Senator BREWSTER. But now it is to be in?

Mr. ARNOLD. Now it is licensed royalty free to the Government. There doesn't have to be any pool. It is royalty free to anybody, and there doesn't have to be any pool.

Senator BREWSTER. For Government purposes during the duration of the war?

Mr. ARNOLD. For any purpose.

Senator BREWSTER. All right. Under the arrangements which have been made to date for the construction of facilities, an option is given the Standard for the acquisition of those properties after the emergency for a preferred period of 6 months, which would mean that the physical facilities might become the property of the private company which had been operating. I would like your comment, Mr. Arnold, on what the effect of that arrangement may be on the problems of the Antitrust Department after the war.

Mr. ARNOLD. I would like to cite a particular example, because we take up case by case.

Senator BREWSTER. Let's take this.

Mr. ARNOLD. I will, however, comment in general, splitting it up into examples. The fight, as I see it—the trading (I won't call it a fight) negotiations in this war are more to obtain future control than they are for profits, as I see the picture, and constantly I see companies coming in (and I won't give their names, because it wouldn't be fair without subpoenas) and demanding long-term leases or provisions in contracts allowing them to maintain control and shut down production after the war. Contracts of all that kind are frequent, and, of course, my own belief is that we are going to have a tremendous production after the war. I believe we are going to enter really into the light-metals age. I think that the monopoly problem is going to be solved by this tremendous production, provided that we don't permit these companies to get control during the war and shut down production again.

I do not like to give the specific names of the cases without an additional subpoena and without the documents. I just don't want to speak publicly without careful preparation. But that is my reaction to your question.

Senator BREWSTER. Let's take a perfectly specific case which is, as far as I know, entirely typical of what we have found in aluminum

and other fields. Take this particular case of synthetic rubber: Assume that 200,000 tons of the rubber raw materials in synthetic production were allocated to Standard Oil out of 400,000 or 600,000 tons; assume that they had an option to acquire those facilities at the close of the war so that they might control facilities capable of producing 200,000 tons. What would be their position in dominating that field?

Mr. ARNOLD. Their position, of course, would be against the policy of the antitrust laws. I wish to state, however, the policy——

Senator BREWSTER (interposing). Would the fact that they acquired that under an agreement with the Government be construed as a violation of the monopoly?

Mr. ARNOLD. I will give you a digest of an opinion which I wrote on one company where they wished to control the thing after the war and have the power to shut the plant down when prices fell. We wrote and said that under the *Appalachian Coals case*<sup>1</sup> it was impossible to foresee at that time what the position of the company would be after the war, but if they were in a dominating position, that contract would become, by force of circumstance, illegal, and if they weren't, they might be taken care of by the *Appalachian Coals case*.

Senator BREWSTER. I correct my statement of 6 months. I find it is 60 days. Of course, that just changes the period within which they must make the decision as to whether they would acquire. But you feel that the fact that they are acquiring these facilities under a contract with the Government would have no effect on their possible violation of the antimonopoly statute?

Mr. ARNOLD. I would like to explain that. I think it is a very useful question.

Certainly they do not violate the antitrust laws in any way, shape, or manner when they acquire anything or do anything at the direction of the Government. Now that is absolutely clear. There has been a lot of perfect nonsense disseminated in the press to the contrary, but no one who enters into an agreement by order of any Government agency is conspiring with the Government agency or anybody else, unless there is something sub rosa in it. So that when they enter into these contracts, the contracts might be wise from a monopoly point of view, they might be foolish, we might like them, or we might not like them. There is absolutely no violation of the law if there isn't some sub-rosa scheme which we might dig up, if they are actually bona fide, acting in good faith.

Next, if at the close of the war, by virtue of these contracts, these people dominate the field and have a monopoly, they haven't committed any offense, but nevertheless they might be subject to a civil suit, with no penalty, for dissolution. That is brought out as clearly as anywhere I know in the *Appalachian Coals case*. In the *Appalachian Coals case* a group of coal marketers—people marketing coal—got together with the avowed intention of bettering their position in a ruinous market. In other words, they wanted to get better prices for their products. The Government sought to enjoin them. The Supreme Court of the United States decided the case against the Government, and in a really great opinion by Mr. Justice Hughes, the Justice said that since these people did not dominate the market there was nothing unreasonable about that combination even though it was a combination in restraint of trade. "However," said Mr. Justice

<sup>1</sup>*Appalachian Coals Inc. v. U. S.*, 228 U. S. 344.

Hughes, "this case will be kept open so that if, by economic circumstances, at some future time these people do begin to control the coal market, the Government can enjoin that new combination." Hence, you have a situation in which you gradually grow until, by economic circumstances, without any criminal violation of the law, you are in a situation where you might be dissolved.

Senator BREWSTER. That is, you would say that what is innocent today might be criminal tomorrow.

Mr. ARNOLD. No; it will not be criminal. It can't possibly be criminal, because here the Supreme Court has said this isn't an unreasonable restraint of trade. But if suddenly, just by sheer force of circumstances, such as all the other operators dying, the combination fixes the prices all over the United States, it hasn't been a conspiracy. It has been approved and was approved by the courts. It involves either of two angles to the Sherman Act: One a criminal provision and the other a suit for dissolution or injunction, which involves no penalties whatever. That is the basis of our opinion.

For instance, if here is a Government contract which gives—well, let's take the three copper companies. I understand they have possibly 70 percent, haven't they? I am just speaking in round numbers. Perhaps after the war they may come out with about 80 percent of the copper. Will they have a monopoly or not? There are going to be competing materials—magnesium. There will be any number of different situations which would have to be taken into consideration with the copper companies' situation after the war. So, with respect to those contracts, we say there is nothing illegal about them. They are entered into at the direction of the Government, and we are just not prophets enough to know what the thing will be after the war.

Senator BREWSTER. From your experience in the enforcement of the antitrust laws, would you feel that these option agreements in all these fields may present serious problems after the war?

Mr. ARNOLD. Oh, I am perfectly frank to say that if I had charge of all the option agreements, I might not make some that are now being made. But I do wish to point this out: the defense agencies are in a hurry, they have got to move, and it is not up to the Anti-trust Division to determine the policy of the agreements which they make.

Senator BREWSTER. Both the Aluminum Co. and the Standard Oil have indicated they do not attach great importance to those options, so that it isn't apparently a matter of prime importance in their negotiations.

Mr. ARNOLD. I have been very careful at all times not to attempt to advise other agencies on what contracts they should make or what contracts they shouldn't make, and I think that anyone who enters those contracts naturally will make mistakes, and I have no function in determining that. I seek only to determine that the thing just isn't dumped over in N. R. A. fashion to some industry committee so that the agency exercises no authority and the new war N. R. A. committee fixes the whole thing up. That is my function.

The CHAIRMAN. Senator Burton?

Senator BURTON. Mr. Arnold, I wish to compliment you first of all on the constructive approach you have made to this problem, and

I want to check up to see just how far we have gone. As I understand it, there is a decree, which you will discuss with us later, tomorrow, which will cover the situation as to synthetic rubber alone.

Mr. ARNOLD. It is much broader than that.

Senator BURTON. Does it cover chemicals?

Mr. ARNOLD. It is all chemicals—explosives, gasoline, chemicals. Mr. Jacobs, do you mind answering the question?

The CHAIRMAN. Identify yourself for the record, and then answer the question.

Mr. JACOBS. My name is John R. Jacobs.

The decree will affect every patent in the pool between Standard and I. G.<sup>1</sup> That includes much more than the synthetic-rubber patents themselves. It includes a wide variety of chemicals, processes for the manufacture of aviation gasoline, processes for the manufacture of synthetic gasoline, and numerous synthetic materials—toluol, useful for TNT—and a wide variety of other chemicals.

Senator BURTON. Thank you. Now, my second question is, does the situation find us, then, now relieved and the Standard Oil Co. now relieved of obligation to I. G. Farben?

Mr. ARNOLD. Yes; entirely. I have one objection to the decree on that score, which may or may not be minor, but I will say that outside of one objection, which I will explain tomorrow, I think it is completely relieved.

Senator BURTON. So that company and its officials need no longer plead that they are under obligation to them in accordance with their contracts, and so on.

Mr. ARNOLD. That is right.

Senator BURTON. And must limit their use of these patents and inventions and processes.

Mr. ARNOLD. That is it.

Senator BURTON. Next, there are——

Mr. ARNOLD (interposing). May I say how that is done? The Alien Property Custodian seized the German interests. There is a dispute as to exactly what the German interests are, but the Alien Property Custodian, representing the seized German interests, has consented to this decree, so that he has, for I. G. Farben, formally terminated all these arrangements. The Standard Oil had to have that. Otherwise there might be some future suit or obligation with I. G. Farben.

Senator BURTON. That covers the chemical field, as you have spoken of it, and the Standard Oil. How about the other developments of other companies in that field? Are there other decrees to be made or other investigations that we must go into before we have the whole field of chemistry open to us?

Mr. ARNOLD. Oh, yes. Oh, I don't think the surface of these cartel arrangements has been scratched. We will give you some of the ramifications tomorrow. We have the same typical arrangements in the entire chemical and dye field and the drug field. We are taking them one at a time.

Senator BURTON. That brings me to my final question somewhat along the lines Senator Brewster was inquiring. The process at the present time, therefore, of releasing the subject matters of these

<sup>1</sup> See Exhibits Nos. 440 and 441, appendix, pp. 4677 and 4693.

cartels to public use, even in this time of war when we need them quickly, is a cumbersome process as it now stands. I take it you are giving consideration to whether or not legislation could be considered at an early date which might help to cover that more effectively and efficiently.

Mr. ARNOLD. Yes; we are.

Senator BURTON. Thank you.

Mr. ARNOLD. I want to point out, though, that no sensible legislation can be drawn up without the information. There are a lot of people who think that these things are destroying and disturbing national defense, and it is our position that we cannot project the procedure when we permit some sub rosa things of this character to go on without investigation.

The CHAIRMAN. Senator Kilgore?

Senator KILGORE. No questions.

The CHAIRMAN. Senator Bone?

Senator BONE. Mr. Arnold, do you intend to touch on the problems of magnesium and aluminum?

Mr. ARNOLD. Not in this hearing.

Senator BONE. Has your Department made any inquiry into restraints in production of magnesium and aluminum?

Mr. ARNOLD. Yes.

The CHAIRMAN. This committee has gone into the matter thoroughly and made a record of it, Senator Bone.

Senator BONE. I would like to have that made available to me.

Mr. ARNOLD. My preparations in appearing before this committee do not include the patents in magnesium and aluminum or any other patents.

The CHAIRMAN. Are there any other questions, gentlemen?

The committee will stand recessed until 10:30 tomorrow Mr. Arnold, and we will ask you to come back and finish the program. The other witnesses will be held over until next week.

(Whereupon, at 12:15 p. m., the committee recessed until 10:30 a. m., Friday, March 27, 1942.)



# INVESTIGATION OF NATIONAL DEFENSE PROGRAM

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FRIDAY, MARCH 27, 1942

UNITED STATES SENATE,  
SPECIAL COMMITTEE TO INVESTIGATE  
THE NATIONAL DEFENSE PROGRAM,  
*Washington, D. C.*

The committee met at 10:40 a. m., pursuant to adjournment on Thursday, March 26, 1942, in Room 318, Senate Office Building. Senator Harry S. Truman presiding.

Present: Senators Harry S. Truman (chairman), Joseph H. Ball, James M. Mead, Harley M. Kilgore, and Harold H. Burton.

Present also: Senator Homer T. Bone, Mr. Hugh A. Fulton, chief counsel; Mr. Charles P. Clark, associate chief counsel; and Joseph Borkin, chief economist; Edward Levi and Herbert Berman, special assistants to the Attorney General; John R. Jacobs, special attorney. Antitrust Division, Department of Justice.

The CHAIRMAN The committee will come to order.

Mr. Arnold, you were stopped in the midst of your statement yesterday and I suggest that you proceed from that point on.

## STATEMENT OF THURMAN W. ARNOLD, ASSISTANT ATTORNEY GENERAL—Resumed <sup>1</sup>

### DELAY IN PRODUCTION OF SYNTHETIC RUBBER CAUSED BY STANDARD OIL— I. G. FARBEN CARTEL AGREEMENTS

Mr. ARNOLD. Mr. Chairman, yesterday I developed some of the basic relationships between Standard and I. G. Farben insofar as those relationships were reflected in the rubber shortage in this country.

I am not going to summarize that at the present time, since I prefer to have the documents speak for themselves.

At the close of the hearing yesterday, I stressed the fact that it is important for the committee to understand the many ramifications of cartel agreements such as the Standard-I. G. Farben agreement. I pointed out that this agreement had its effect in the relations between Standard and du Pont. Now, the domestic ramifications of these powerful cartels must be understood as a basis for any intelligently considered legislative reform. I want to point out and emphasize that Standard Oil of New Jersey is a guinea pig in this situation, that it does not stand out alone; that this sort of thing from 1920 to 1933 was going on in a large number of American industries.

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<sup>1</sup> Under date of June 1, 1942, Mr. Arnold submitted a supplemental statement which appears in the appendix on pp. 4808-4923. In this connection see also supplemental letter from Mr. Farish to the committee dated June 1, 1942, which appears in the appendix on p. 4806.

Now, I will give you some significant illustrations, by way of illustration solely, of the kind of thing that these cartels lead to. For example, as early as 1928, Mr. Clark of Standard wrote as follows:

If Standard were now to ally itself with I. G. and/or others in the manufacture of chemicals, solvents, etc., it would be competitive with D. (du Pont) and C. S. (Commercial Solvents).

(The memorandum referred to was marked "Exhibit No. 416" and is included in the appendix on p. 4642.)

Mr. ARNOLD. A memorandum found in the files of Standard Oil, dated June 21, 1928, states as follows [reading from Exhibit No. 417]:

My definite suggestion, therefore, is that we make every effort to convince the du Pont people that our backing of the I. G. in the chemical business in the United States is not directed against them but is an unfortunate result of circumstances beyond our control and that we believe that if we can maintain, as in the past, the closest and friendliest relations with them, we will be in an advantageous position to serve both them and the I. G. in the United States in matters in which there might otherwise be unnecessary conflict of interests on both sides.

(The memorandum referred to was marked "Exhibit No. 417" and is included in the appendix on p. 4643.)

Mr. ARNOLD. So, you can see the penetration of this real policy throughout our industry, not because of unpatriotic motives, but simply to maintain this monopoly position which they were trying to build up.

Apparently, on March 6, 1930, I. G. Farben, du Pont, and Standard entered into an agreement which included the following, according to this memorandum prepared by Dr. Krauch of I. G. Farben, from which I now quote [reading from Exhibit No. 418]:

If, in the development of the new process, it is found that products or chemicals will be produced that are now commercially manufactured by the du Pont interests, the Standard and I. G. would discuss same with the du Pont Co. and endeavor to find a way in which the commercial exploitation of such processes and products would best be carried on to the greatest benefit of each of the three parties.

(The memorandum referred to was marked "Exhibit No. 418" and is included in the appendix on p. 4646.)

Mr. ARNOLD. The part which Standard played in bringing these parties together for this agreement is indicated by a letter from Dr. Bosch of I. G. Farben to Mr. Teagle, dated April 15, 1930.

(The memorandum referred to was marked "Exhibit No. 419" and is included in the appendix on p. 4647.)

Mr. ARNOLD (reading from Exhibit No. 419):

I should like to thank you also particularly for arranging for a conversation with Mr. Lammot du Pont and for the personal interest you have yourself taken in it. I believe that as a result of your intervention the deadlock of the negotiations between du Pont and I. G. has now been overcome and that thereby our desire will be realized to reach a cooperation with this very energetic and cleverly proceeding firm, which we have tried to bring about for years. The reason for the failure of our former negotiations may be the lack of the right personal contact which now has been established thanks to your personal interest.

In other words, the Germans were influencing our own industrial organization at home. There are many examples of this and I don't wish that Standard Oil stand out as the only one.



The nature of these arrangements with du Pont is described in a letter of June 23, 1936, from F. H. Bedford, Jr., to Frank Howard. (The letter referred to was marked "Exhibit No. 420" and is included in the appendix on p. 4648.)

Mr. ARNOLD (reading from Exhibit No. 420) :

As previously stated, it is my feeling that we should review our entire chemical situation before making any further possible "entangling alliances," and would suggest that the Board be furnished with copies of all existing contracts, together with a simple summary of the obligations we have with the various companies such as the I. G., du Pont, Standard Alcohol, Jasco, etc., so as to enable the Board to arrive at a sound policy and to be sure that we have not, and will not, tie our hands in any way in the manufacture and sale of chemical products.

The unfortunate results of independent business trying to get into war production, I will show by one example, and I only give this example because it is imperative that this committee appreciate the ramifications of these agreements. I submit herewith a letter dated May 15, 1940, found in the files of Standard Oil, dealing with the activities of Standard Alcohol Co., a subsidiary of Standard Oil. This letter appears to show that the Standard Alcohol Co. refused to make available synthetic toluol to the Trojan Powder Co., of Allentown, Pa. I will read this letter.

(The letter referred to was marked "Exhibit No. 421" and appears in the appendix on p. 4648.)

Mr. ARNOLD. I want to say that this situation has been cleared up, I think, because toluol patents are included in the decree which Standard has just signed. [Reading from Exhibit No. 421:]

DEAR BUD: Dr. W. O. Snelling of the Trojan Powder Co., Allentown, Pa., called yesterday and stated that he understood we were considerably ahead of other oil companies in producing synthetic toluol, and he wanted us to quote him on it and give specifications.

We immediately got in touch with Douglas Stewart and got his advice as to how the matter should be handled and he, in turn, talked with Major Harris.

Mr. FULTON. Who was Major Harris?

Mr. ARNOLD. Major Harris is an Army officer (reading further from Exhibit No. 421) :

It developed that Major Harris had sent the Trojan Powder Co. a bid and had told Dr. Snelling that we were preparing 20,000 gallons of synthetic toluol.

After Stewart talked with Major Harris, Harris again talked with Dr. Snelling and told him that it was a more or less private arrangement and asked him to withdraw the bid.

Mr. Stewart advised us of this situation and then suggested, as a courtesy, that we call Dr. Snelling, but to tell him nothing, as Dr. Snelling would probably withdraw the bid.

I called Dr. Snelling yesterday in reply to his inquiry, and he confirmed the fact that he understood that we had 20,000 gallons of synthetic toluol and wanted to know at what price we would sell it. I told him that, as a matter of fact we did not have 1 gallon of synthetic toluol made and even if he bid \$100 per gallon, we could not supply it at this time. I stated that we had done some work in producing synthetic toluol, but as yet had found no interest and he seemed satisfied and stated that when he was in New York again he would drop in to see us.

Yours very truly,

JAMES G. PARK,  
E. A. B.

Mr. Park is vice president of Standard Alcohol.

Attached to this letter is to be found the following note. [Reading further from Exhibit No. 421:]

Mr. Sadler has asked me to tell you he felt it was a bad mistake to make the statement contained in the last paragraph of the attached letter from Park. He feels it is much better to say nothing than to say something that we know isn't true.

R. P. RUSSELL.

I felt about the same.

Mr. FULTON. Mr. Arnold, which part of that statement wasn't true?

Mr. ARNOLD. The statement was not true that they didn't have any synthetic toluol, because shortly afterwards they sold 20,000 gallons to du Pont. If you read the letter itself, the first paragraph shows that they had some 20,000 gallons.

A later exhibit also shows that, which I will come to in a moment.<sup>2</sup>

Mr. FULTON. Did Major Harris know that?

Mr. ARNOLD. I don't know.

Mr. FULTON. Have you checked, or can you check, on that from their files?

Mr. ARNOLD. We can; yes.

Mr. FULTON. Because it appears from that letter that it was Major Harris, or through him, that Standard acted in getting the other company to withdraw the bid.

Mr. ARNOLD. I have no knowledge, and our files do not show anything more about Major Harris than that.

I shall have to explain to the committee that a previous letter dated May 3, 1940, stated as follows [reading from Exhibit No. 422]:

\* \* \* That Major Harris, who is stationed at Wilmington and who is cooperating very closely with the du Pont Co. and who has worked with our people will sent out competitive bids shortly for TNT, which must be made from synthetic toluol. The du Pont Co. expects that they will get the bid; therefore, du Pont will buy synthetic toluol from us.

Regarding the toluol situation in general, Mr. Stewart says that their company is in a rather peculiar position as they have a close working arrangement with the United States Steel Corporation, which at the present time produces about one-half of the toluol in the United States. In order to protect this position, while the du Pont Co. privately wish to see synthetic toluol produced, they cannot openly encourage such production as they are fearful of jeopardizing the preferred position that they hold with the Steel Corporation.

That was May 3, 1940.

(The letter referred to was marked "Exhibit No. 422" and is included in the appendix on p. 4649.)

Mr. ARNOLD. This correspondence, I think, bears on the argument so frequently made that these cartels were useful in getting information which we wouldn't otherwise get from the Germans. I have already indicated my emphatic disagreement with that argument. I think the cartels result in more or less careless—not unpatriotic, but careless—businessmen simply being duped; but I want to point out that this incident shows even if they do get anything, they simply distribute it among their friends, which is certainly an unjustifiable result, even if they got the information.

The CHAIRMAN. It also prevents the American scientists and inventors from working as hard as they would trying to get this result, because they think it has already been found and covered by these various patents.

<sup>2</sup> See Exhibit No. 423, appendix, p. 4650.

Mr. ARNOLD. That is right, and of course, with the basic patents, they face infringement suits.

The CHAIRMAN. I think American scientists probably would have found everything they had in that cartel if they had been allowed to do it with a free hand.

Mr. ARNOLD. I think today they are going ahead faster than any country in the world.

I shall have to further tell the committee that a letter dated June 18, 1940, which I was just questioned about, shows that Standard Alcohol sold toluol to the du Pont Co., after this correspondence. I won't read that letter; I will simply introduce it.

(The letter referred to was marked "Exhibit No. 423" and is included in the appendix on p. 4650.)

Mr. FULTON. And within a month.<sup>1</sup>

Mr. ARNOLD. Within a month; yes.

While the documents I have just read would appear to show a close relationship between du Pont and Standard Oil, the relationship between Standard Oil and I. G. Farben was even closer. I call the attention of the committee to a letter of April 30, 1930, written by Mr. E. M. Clark, vice president of Standard Oil to Dr. Carl Krauch, of I. G. Farben.

(The letter referred to was marked "Exhibit No. 424" and is included in the appendix on p. 4650.)

Mr. ARNOLD (reading):

MY DEAR DR. KRAUCH: I have just learned in an offhand way that the du Pont interests are doing considerable research work on producing artificial rubber from butadiene. I am giving you this information, which I believe to be accurate, with the thought that you will wish to carefully review your patent and applications for patents situation.

There you see, Mr. Chairman, how the fencing process works, fencing off patents, and there they are fencing off the du Pont interests by getting patents.

Now, with respect to the future possible collaboration of these cartels with Germany. I wish to tie the next part of my testimony up to what I consider a defect in the decree. That decree does not carry the provision which the Department of Justice wanted, that any future arrangements with foreign countries be submitted to the Attorney General for approval. Now, I don't want to be too severe on Standard Oil of New Jersey for not entering into that stipulation. They felt that they were enough of a guinea pig, anyway, and that they didn't want to be differentiated by a decree from other corporations; and therefore I signed it because I believe that the recommendations at the end of the report will amply take care, not only of this situation, but of the situations of all other cartels which have been engaged in similar practices.

I think we all of us may wonder what the future of this country will be in terms of any continuing relationship between companies like I. G. Farbenindustrie through cartel arrangements with American companies. Surely we have every reason to be on the alert. I have already referred to the so-called Hague memorandum, and I have indicated Mr. Howard's interpretation of this as providing a modus

<sup>1</sup> Referring to Exhibit No. 421, see supra, p. 4337.

vivendi with the German Dye Trust throughout the war. They were apparently living up to that idea long after the fall of France. I call your attention to a letter dated February 20, 1941, which was apparently sent to Mr. Howard. It is written by Crampton, the Standard Oil representative in France [reading from Exhibit No. 425]:

DEAR FRANK: As intimated to you briefly the other day, Dr. Ringer came to Paris to see me before I left at the end of January, and asked me to give you the following message in regard to cable which he had received, I believe, from your good self:

"Jasco cable will be difficult but one underlying point is that Jasco contract has not been wiped out as agreed whatever done the final financial outcome original intention of old Jasco agreement should govern."

(The letter referred to was marked "Exhibit No. 425" and is included in the appendix on p. 4651.)

Mr. ARNOLD. That is February 20, 1941, and it certainly indicates that we cannot go to sleep over these cartel arrangements.

Surely we must be aware of the continuing relationship between I. G. Farben and Standard Oil when we discover Standard Oil representatives negotiating at that date.

The CHAIRMAN. That was just 7 days before the Truman committee was authorized.

Mr. ARNOLD. Was it? They just got in under the wire.

On June 26, 1940, an arrangement for the purchase of patent rights subject to the following condition, and I quote the condition: "Subject to reversion to I. G. under suitable conditions."

(The document referred to was marked "Exhibit No. 426" and is included in the appendix on p. 4651.)

Mr. ARNOLD. Here these patents are going back, apparently, after the war to I. G.

Mr. FULTON. These are all American patents?

Mr. ARNOLD. Yes; American patents.

Mr. FULTON. Which in the event of war would be subject to seizure?

Mr. ARNOLD. That is right.

Mr. FULTON. And instead they were transferring them to an American company, Standard.

Mr. ARNOLD. An American company held them under a private arrangement that after the shooting had stopped, they would again pick up this profitable monopoly program.

Mr. FULTON. Would that not have the effect of depriving the Government of the power of seizing the foreign patent unless they looked through the fiction—

Mr. ARNOLD (interposing). Unless you look through the fiction, it would deprive the Government of the power of seizure. Without discovery, without a grand jury investigation, we wouldn't know anything about it. Of course, with the grand jury investigation, the patents can be seized.

Mr. FULTON. From your investigation of the documents, have you found any other purpose that has been expressed in their files? In other words, is there any reason other than this one of avoiding the Government seizure of German patents?

Mr. ARNOLD. I would say that what these people were trying to do was to look at the war as a transitory phenomenon and at business as a kind of permanent thing: The war is going to be over in a couple

of years and let's not have it interfere any more than necessary with the commercial relationships which in the long run are bound to exist. In other words, I think that really was the sole motivating force of Standard, and yet from an economic point of view, it is a most disastrous economic set-up.

I want to call the attention of the committee also to a series of cablegrams which I have lumped in one exhibit, sent by Standard Oil to I. G. Farben after The Hague memorandum, discussing the form and provisions of proposed licensing agreements dealing with synthetic rubber.

(The cablegrams referred to were marked "Exhibit No. 427" and are included in the appendix on p. 4651.)

Mr. ARNOLD. It wouldn't be fair if I left the impression that the arrangements between I. G. Farben and Standard Oil even with respect to synthetic rubber are unique. The unfortunate and significant fact is that other American companies are part of the picture. For instance, on October 30, 1934, a cross-licensing agreement was entered into between I. G. Farben and Röhm & Haas, of Philadelphia.

(The documents referred to were marked "Exhibit No. 428" and are included in the appendix on p. 4654.)

Mr. ARNOLD. Under this agreement, Röhm & Haas agreed not to make the following items: Röhm & Haas weren't to make photographic articles, celluloidlike masses and products made therefrom, dyestuffs, artificial rubber, pharmaceutical articles, and abrasives.

We have already referred to Standard's statement that butyl rubber for Italy was controlled by I. G. Farben. I now quote from a letter of January 20, 1941, signed by Mr. Fisher, manager of Standard Oil Development Co. [reading from Exhibit No. 429]:

Naturally, under the present war conditions, it is physically impossible for us to reach some markets that properly belong to us. \* \* \*

May I interpolate that you can see this motive of preserving the markets that properly belong to them.

Mr. FULTON. When you say "properly belong," you mean markets that under their agreement have been assigned by the German company to Standard?

Mr. ARNOLD. Yes. And now I continue [reading further from Exhibit No. 429]:

\* \* \* for example, occupied France, and conversely, it is impossible for the I. G. to reach certain other markets. Therefore, there always exists the possibility of making some temporary arrangement with the I. G. if it is to our mutual advantage to do so. \* \* \* It should be noted that we cannot presume inability of the I. G. to deliver.

It is, therefore, necessary to refer South American and Japanese customers to the I. G.

(The letter referred to, and further correspondence on the same subject, were marked "Exhibit No. 429" and appear in the appendix on p. 4661.)

Mr. ARNOLD. Now this, I think, is extremely relevant upon the necessity for some sort of registration disclosure of all these cartel arrangements, and here Standard Oil is simply the guinea pig to illustrate the point I am making.

I think we must admit also that Standard's continuing relation with I. G. Farben has placed Standard in a rather ambiguous position. A Standard executive committee memorandum, dated February 24, 1941.

indicates that Standard felt it would be advantageous to effect an arrangement suggested by I. G. Farben as to the control of hydrogenation patents in the French area. I quote the document [reading from Exhibit No. 430]:

Mr. Howard reported that, in line with Mr. Crampton expressing at lunch the other day the German I. G.'s keen desire to have France included in the area in which hydrogenation patent rights are reserved to them rather than in the area in which hydrogenation rights are reserved to the Hydrogenation Patents Co., he had reviewed the matter further and found this arrangement could be put into effect smoothly because it appears the I. G. already has completed necessary ground work with Standard Francaise des Petroles and the French Government, so that S. F. P. would be in position to look after both Jersey and Shell interests. Although Shell to date has seemed reluctant, or perhaps under pressure of the British Government—we might have some troubles in all the democracies of this kind—has been unable, to entertain favorably this proposal to the extent that their interest in International Hydro Patents is affected, Mr. Howard said he believed matters had reached the point where they now may yield.

Committee felt it would be advantageous to effect the arrangement suggested by the I. G.

(The document referred to was marked "Exhibit No. 430" and is included in the appendix on p. 4663.)

Mr. ARNOLD. Another example of the ambiguous position in which these cartel arrangements placed such companies as Standard is indicated by Standard's reason for deciding to cooperate with the German Government in the construction of facilities for aviation gasoline. This was before the war. I quote from a letter of September 20, 1938, from F. A. Howard to Orville Harden, in which Mr. Howard pointed out the adverse effects on the morale of the German subsidiary if the German subsidiary did not cooperate with the German Government.

(The letter referred to was marked "Exhibit No. 431" and is included in the appendix on p. 4664.)

Mr. FULTON. That is a German subsidiary of Standard Oil?

Mr. ARNOLD. Yes.

Mr. FULTON. And this is an aviation gasoline developed by Standard Oil?

Mr. ARNOLD. That is right.

Mr. FULTON. And not by the Germans?

Mr. ARNOLD. That is correct [reading from Exhibit No. 431]:

There is one other angle of the matter which we discussed this morning, and on which we are all agreed. The internal standing of the D. A. P. G.—the name is Deutsche-Amerikana Petroleum Gesellschaft—it is the subsidiary of Standard Oil you talked about—organization is distinctly not good at the present time, very largely for the reason that as a company D. A. P. G. have not borne any active part in the development of Germany's internal industries, which is now assumed to be the first duty of every German, individual and company. The Rhenania have been very busy and aggressive in increasing their refining capacity and refining important products for reexport. The Vacuum have been very aggressive in refinery construction and both aggressive and fortunate in obtaining crude production. Under present conditions Engler and Kruspig are consulted by the Government on all problems connected with the oil industry, and D. A. P. G. is left out of the conferences. The fact that Klasen is regarded as a "Schacht" man may also have something to do with this situation. In any event the morale of the D. A. P. G. organization is very badly affected by their present situation, and they have lost some very good men. For the first time in my acquaintance with him Mr. Klasen has seemed very much troubled and discouraged about the prospects.

While these last considerations are of course not by any means to be controlling, and would not dictate the acceptance of any German policy which was unsound from a business standpoint, they have certainly some weight. Particularly for this reason we hope you gentlemen will have acted at once upon our recommendation of the enclosed telegram.

Now, Standard's participation in the German autarchy program is further indicated by a memorandum of the executive committee, dated October 28, 1938, from which I now quote [reading from Exhibit No. 432]:

German refinery: Plans are being developed to erect a combination hydrogenation and catalytic cracking plant for the production of 150,000 tons of aviation gasoline per annum from Ebano distillate, supplemented by imported distillate. This plant will be erected in connection with a plant of similar capacity for the manufacture of motor gasoline from local tars, this second plant to be one of the stand-by plants of the Four Year Plan, to be financed entirely by the Government. These projects, if finally agreed upon, will be the first definite contribution of the D. A. P. G.—Standard subsidiary—to the development of Germany's autarchy program. The advantage of the catalytic plant is that it will reduce the investment and will provide an opportunity for the I. G. organization to follow, at first hand, commercial operations of catalytic cracking as a guide to their program of research and development work in this field in their laboratories.

(The memorandum referred to was marked "Exhibit No. 432" and is included in the appendix on p. 4665.)

Mr. ARNOLD. Now, I want to point out this was before the war, but this is the kind of results that accrue, the way our enemies get armed, by simple-minded people following the dictates of a foreign government under such a program. I don't think there was any intention to build up Germany for war, or anything of that sort, but you can see the power which this interrelation of American industry gives the German autarchy program, and the penetration in the democracies of that kind of thing is, I think, greatly responsible for Germany's productive success.

Senator BURTON. You said "simple-minded." Didn't you mean commercially minded?

Mr. ARNOLD. That is the same thing in this kind of a deal. Commercially simple-minded, I think would be the proper phrase.

I wish particularly to point out that Standard itself was in a position to benefit economically from its arrangements with the German cartel. An example of the close relationship between I. G. and Standard is the fact that I. G. offered to purchase Standard's Hungarian property in August 1941 for \$24,000,000 in gold at Lisbon.

Mr. FULTON. Under German foreign-exchange regulations, it would have been absolutely impossible to do that without the concurrence of the German Government, would it not?

Mr. ARNOLD. I think so. I think it would have been impossible, but I want to say that this was turned down by the Economic Defense Board, and so due to the action of the Economic Defense Board this transaction was not consummated. The offer, however, was made by the I. G. representative in South America as this agent could not obtain a visa to this country, and that is the next exhibit.

(The documents referred to were marked "Exhibit No. 433" and are included in the appendix on p. 4668.)

Mr. FULTON. Did the Standard apply for permission to accept it?

Mr. ARNOLD. Yes. That is the exhibit.

I may remark in passing that Standard helped I. G. Farben design in 1939 their plant facilities for manufacturing aviation gasoline. I quote from a memorandum signed by E. J. Gohr, of the Standard Oil, dated August 1, 1939 [reading from Exhibit No. 434]:

The I. G. gentlemen plan to leave New York on August 4 and will spend the following week in the South and Indiana observing various operations. The following week, beginning August 14, they will return to New York for discussions on the detailed design of the plant. Subsequently one representative will remain in this country until the process design is completed. A flowsheet will be prepared on the yields and operating conditions by Kellogg which will be checked by the Development Co. This should be available for discussions during the week of August 14. The process design work will be carried out by Kellogg with detailed check by the Development Co. This checking will be confined to the catalytic cracking equipment proper in the plant. We advised that Development would not be able to supply an engineer to assist in the design of the unit until after August 14, although we would be able to render assistance in checking the process conditions prior to that time.

Now that was just before the war. You see, the war started in September and that was in August.

(The memorandum referred to was marked "Exhibit No. 434" and is included in the appendix on p. 4671.)

Mr. ARNOLD. As a further indication of the ramifications of these cartel agreements, I have to point out that the documents indicate that Standard at least was considering a closer relationship between it and the Japanese Mitsui firm in 1939. This document, which I won't read, I will hand in as an exhibit.

(The document referred to was marked "Exhibit No. 435" and is included in the appendix on p. 4672.)

Mr. ARNOLD. A cable from Yokohama to New York on September 11, 1939, states [reading from Exhibit No. 436]:

Also as we fear United States Government in near future may have grounds for action unfavorable to American Japanese trade we consider timely for us to organize with Japanese partners whose influence would be valuable later toward our reestablishment after any interruptions in our trade.

I don't know what came of that. I simply show this to illustrate the necessity for being on the alert.

(The cable referred to was marked "Exhibit No. 436" and is included in the appendix on p. 4675.)

Mr. ARNOLD. In reading the Standard documents, one has the feeling it is impossible to determine what conduct patriotic American companies may be forced into by these cartel arrangements. It is a kind of insidious process. I quote from the minutes of the executive committee of Standard Oil. The minutes for February 3, 1941, state as follows [reading from Exhibit No. 437]:

Mr. Harden reported, for the information of the committee, that supplies of aviation gasoline are being made available by our interests to the "Littoria" (Italian Aviation Line) at Rio de Janeiro. A local, apparently Nazi supported, newspaper in Rio has publicized this fact as indicating that the supply of material quantities of aviation gasoline at that place to the Italian Line is enabling a movement of mail, et cetera, from Axis Powers to the Western Hemisphere around the British blockade, and speculates whether the British would be impelled to interfere with the tank steamer bringing that material from the Caribbean to Rio.

(The document referred to was marked "Exhibit No. 437" and is included in the appendix on p. 4676.)

Mr. ARNOLD. The minutes of February 17, 1941, state as follows with reference to that same situation [reading from Exhibit No. 438]:



Mr. Harper reported that after Mr. Atherton, of the United States State Department, had been informed regarding the aviation supplies shipped from the Caribbean to Rio de Janeiro for account of the Italian Air Line (see committee memorandum of February 3), he discussed the question with Secretary Hull, who advised that if such shipments were contemplated from the United States an export permit would be refused. However, since the shipments emanated from outside the United States, Mr. Hull said he could only express the hope that it would not be necessary for such shipments to originate from any other place in the Western Hemisphere.

The present inquiry involves 2,500 barrels' (6 months' requirements) of aviation gasoline from Ali Littoria, to be delivered into customers' storage in bond in Rio de Janeiro. While there is no contract covering this business, the customer has been a regular customer. In view of the complications surrounding this matter, committee was of the opinion that the quotation should be given f. o. b. Aruba, and not c. i. f.

(The document referred to was marked "Exhibit No. 438" and is included in the appendix on p. 4676.)

Mr. FULTON. That oil and gasoline, then was coming from the refinery at Aruba, which was subjected to attack recently.

Mr. ARNOLD. I will answer that question by reading you the minutes for March 7, 1941 [reading from Exhibit No. 439]:

Mr. Pratt summarized, for the information of the committee, the substance of several cables which had been exchanged between Mr. Harper's office and Brazil and memoranda of contacts with the State Department with respect to the supply of petroleum products to Ali Littoria, Italian air line with a terminal at Rio de Janeiro (see committee memorandum of February 17). He stated that Mr. W. M. Anderson, after having been advised that our interests were not in a position to provide transportation for supplies from Aruba into company interests' tankage at Rio and that Littoria, if they did not buy from local duty-paid stocks, would be obliged to purchase f. o. b. Aruba, had cabled that local duty-paid stocks were sufficient to enable Standard Oil Co. of Brazil to supply the customer for at least 6 months longer." That would be 6 months after March 7, 1941. That is my own interpolation. I continue the quotation: "He said Mr. Michler is inquiring whether the State Department should be informed of all the current developments in this situation. Committee was not inclined to feel this was necessary."

(The document referred to was marked "Exhibit No. 439" and is included in the appendix on p. 4676.)

#### RECOMMENDATIONS FOR ELIMINATION OF CARTEL RESTRICTIONS

Mr. ARNOLD. Day before yesterday the Department of Justice filed a criminal information and a complaint against the Standard Oil Co. and also entered into a consent decree with them. The company pleaded nolo contendere and paid fines of \$50,000.

The CHAIRMAN. Why were these fines so small in this case?

Mr. ARNOLD. We felt that the interest of getting these patents loose was much more important than making the fines so large that it might involve years of litigation. The fines might have been larger, but, in any event that was our decision.

The CHAIRMAN. They were rather out of proportion with other fines.

Mr. ARNOLD. I have to confess they are somewhat out of proportion.

Mr. FULTON. By that, Mr. Arnold, do you mean that the Standard Oil suggested that unless the decree were entered, they would not make these patents available, particularly butyl?

Mr. ARNOLD. Well, I don't know. I wasn't present in New York at the long negotiations, which covered a period of weeks, the course of which I kept this committee informed of, but, in any event, when the smoke all cleared away and the matter reached my office, it was

simply a take-it-or-leave-it proposition, and at that point, after consultation with a number of people, I finally took it.

Mr. FULTON. With respect to most of the patents, after this committee started the rubber investigation, we were informed that they were made available, but that butyl was not. I just wanted to know whether they had held the butyl back during that period—

Mr. ARNOLD. (interposing). Butyl had not been made available.

Mr. FULTON. As a bargaining point in order to get a lower fine.

Mr. ARNOLD. I suppose that if the committee presses me, I could give and produce witnesses as to the course of all these negotiations. I have a natural reluctance to disclose what was said in conferences in my office and what points were raised. Sometimes voices were raised in heated arguments, people got angry and various things were said, and if the committee doesn't press me, I would prefer to say that it finally resulted in this proposition and that, rightly or wrongly, we took it instead of insisting upon another position which we had taken.

The CHAIRMAN. The committee is going to hear the Standard Oil Co. on Tuesday, and after we have heard the Standard Oil Co., if we feel it is necessary, we may press you for further details.

Mr. ARNOLD. You can understand that negotiations—

The CHAIRMAN (interposing). I think you are to be complimented on what you have done. I am not quarreling with you. But I just wondered why this fine was so small. I think in the interest of national defense it was necessary that these patents be turned loose as quickly as possible for the purpose of getting rubber in this country, and I am not finding any fault with you, but we may want further details after we have heard the Standard Oil Co.

Mr. ARNOLD. We went through one investigation, you remember, in the Geiger case,<sup>1</sup> as to what the Department of Justice said and what someone else said in the negotiations, and everybody remembered it differently. We would like to avoid that sort of hearing if we could. But I did take this thing to get the patents open.

Of course, I would not have given my consent to this decree if I had not felt that, considering all the pressures which are upon us today, the decree would be a substantial contribution to the war program and would do something toward removing this existing cartel arrangement.

Have I introduced the decree and information?

(The documents referred to were marked "Exhibits Nos. 440 and 441" and are included in the appendix on pp. 4677 and 4693.)

Mr. ARNOLD. I consented to the decree because under the decree Standard Oil is compelled to license anyone royalty-free under the crucial rubber patents and the other patents, all of which were involved in the conspiracy, as for example, toluol—all these chemical patents. In addition, Standard Oil must transfer the know-how to these patents. I must confess that I was reluctant to sign the decree because the decree does not have in it a provision, so frequently referred to, allowing either the Attorney General or the court to pass upon the future relations between I. G. Farben and Standard Oil. I think, after reading this memorandum of this continuing

<sup>1</sup> *U. S. v. General Motors Corp.*, 1937, Western District of Wisconsin, following the discharge of the Grand Jury by Judge Ferdinand A. Geiger an investigation was held by the House Judiciary Committee on January 25, 1938 (Hearings on the Conduct of Hon. Ferdinand A. Geiger, 75th Cong., 3d sess.).

negotiation, the committee can understand why I have been worried about the resumption or continuance of such relationships. We are dealing with tremendous forces and complicated arrangements which have led persons and companies into exceeding ambiguous positions. So far as synthetic rubber is concerned, I say to this committee that unless these patents are really open to anyone and the know-how is really given to everyone and the Government is constantly vigilant to see to it that there is no resumption of this cartel arrangement, we cannot expect to see the proper synthetic rubber development necessary for our war program.

Throughout my testimony I have tried to emphasize the fact that this case is not unique. I do not think it is an extreme statement to say that in most of the basic war materials we find similar cartel agreements.

Therefore, we would lose the point of this hearing if the committee simply denounced Standard Oil. We need Standard Oil, with its technicians and its organization, to help us win the war. By the consent decree the company has indicated its willingness to make restitution in the sum of millions of dollars and at the cost of its future domination of the industry. We may well be grateful to that company for putting its arrangements in writing and thus to furnish an object lesson of the results of international cartels. [Laughter.] In other words, I think that they are entitled to a certain benefit in the fact that this is all in writing, to indicate that they were at least naive, because in other cases, if they hadn't done it, it would be exceedingly difficult to make such a beautiful object lesson as this company makes.

The importance of this hearing lies in formulating a constructive program to eliminate the kind of practices here set out, not in Standard Oil, which has paid the penalty, but in other basic industries. It is obvious that this kind of practice on an extended scale throughout industry has been one of the causes why we are short of basic materials. If it continues it will contribute to inefficiency of production throughout the war. If it continues after the war, it will keep us in a continuous state of unpreparedness and giving information to other countries. From an economic point of view such restrictions lower the standard of living and on a wide scale create an irreducible minimum of unemployment. From every point of view, therefore, we must stop a repetition of the cartel system in America.

To accomplish that purpose, I would suggest that the committee seriously consider the following:

(1) The Government should encourage, either through its own agencies, through universities, through foundations, or through subsidies to private industry, research which would lead to improvements in basic processes, which improvements would be available to all. This does not mean that the Government should go into business; it only means that it should take steps to make scientific progress available to independent enterprise.

To give an illustration, we should do something of the same thing for industry that the Department of Agriculture has done for the development of crops.<sup>1</sup>

Standard Oil is not an inventor. You hear it frequently said that Standard Oil invented these things. Standard Oil can issue licenses

<sup>1</sup>In connection with the work done by the Department of Agriculture on synthetic rubber development see statement prepared for the committee by Dr. Earl N. Bressman, Director, Agricultural Division, Office of the Coordinator of Inter-American Affairs, which appears in the appendix on pp. 4942-4955.

and pool patents, but inventions are made today to a large extent by men on salaries who only wish to be let alone to pursue their scientific interests. The story of synthetic rubber shows that research exclusively in private hands actually tends to make our industry dependent upon foreign inventors and to suppress our own inventors.

(2) Private research of the kind that Standard Oil is now engaged in should in no way be discouraged. However, the patent system should not be permitted to impede the progress of science and the useful arts. I will briefly give an example of a patent policy shown in the Temporary National Economic Committee hearings, which is all too frequent in this country and which actually uses patents to violate the constitutional provisions under which the patent laws were authorized, i. e., to promote science and the useful arts. This document is taken from the hearings on the Hartford-Empire Co., published by the Temporary National Economic Committee in 1939, and here is the document:<sup>1</sup>

#### PATENT DIVISION

The question here is: How far should we go in prosecuting inventions to patents, beyond those inventions which clearly cover machines in commercial use?

#### THE MAIN PURPOSE IN SECURING PATENTS

In taking out patents we have three main purposes—

(a) To cover the actual machines which we are putting out, and prevent duplication of them.

The great bulk of our income results from patents. Between a feeder protected by patents and one not so protected there is the cash difference between one ordinary manufacturing profits of, say, \$1,500 and a royalty return of at least \$30,000 over 8 years. This theory also applies to other equipment.

(b) To block the development of machines which might be constructed by others for the same purpose as our machines, using alternative means.

(c) To secure patents on possible improvements of competing machines, so as to "fence in" those and prevent their reaching an improved stage.

There is also another, rather minor, purpose in securing patents. It corresponds with research in machine developments. Occasionally patentable ideas will appear which deal more with general principles. They may have no immediate and apparent application. But they may so relate to the possible future (that is, blocking and fencing and stopping other people) as to merit some time and expense.

In order to be fair to Standard, compare this policy with exactly the same policy as in Standard set out by the patent attorney which I will read again:<sup>2</sup>

The agreement as it is now drafted will lead to the centering of all patent rights of licensees in the hands of licensor, with no outflow of these rights except to customers of licensor (and on two minor phases of patents to licensors' licensees).

All manufacturing patent license of licensees will help to build up licensors' dominating position, but no licensee will get the benefit of any other licensees' manufacturing patent rights. In other words, this is not a cross-licensing agreement, but one in which patents are piled on patents in the hands of one centralizing company.

(3) I would like to suggest that all patent licenses should be registered with the requirement of a full explanation of the terms on which they are granted.

<sup>1</sup> T. N. E. C. Hearings, pursuant to S. Res. 113, 75th Cong., Part 2, pp. 775-776.

<sup>2</sup> See Exhibit No. 383, appendix, p. 4605.

(4) Going beyond that, I would like to suggest that all agreements with industries in foreign nations should be registered with a full explanation of their purpose. I think this hearing shows how immediately important this is. These cases exist, but it is hard to discover them without a grand jury investigation and, as you know, there is always a great deal of pressure against starting grand-jury investigations of companies engaged in national defense. The time now, I think, is for a dragnet which goes beyond these separate antitrust grand-jury investigations. To show how important that is, we have information from a search of the files of another company, that I. G. has more than 100 cartel agreements in this country and, as we have shown, one cartel agreement is related to another, and, as we have shown, the tendency of businessmen to look upon war as a transitory phenomenon and to keep up these dealings still exists. So, I think we need that kind of dragnet, and I think we need it now.

(5) The cost of preventing such cartel restrictions in the future is eternal vigilance and the existence of a wide awake investigating agency to enforce the Sherman Act. Had there been such an agency operating in 1929, had this conduct been actually hazardous at that time, these arrangements would never have been contemplated. But from 1929 to 1933 businessmen felt safe from discovery. Violations of the antitrust laws were thought of as trivial offenses subject only to a cease and desist order. There was a general notion that it was like the violation of the Prohibition Act at about the same time. Antitrust enforcement, to give this country wealth in peace and strength in war, I think, must be continued on a Nation-wide scale.

Last, I wish to point out that enforcement of the antitrust laws and the maintenance of free enterprise is, as a matter of fact, impossible without such committees as this. Without the committee action in this case this story never would have been told. Without the committee's consideration of these recommendations no study could have been made of legislation necessary to supplement the present inadequacies of the law. Without this committee what I consider a great educational lesson to the American people could never have been set forth. Only those who have seen the documents which this committee has gone through can realize the tremendous scope and importance of the work this committee is doing. This committee's task is not a simple one; it is not an easy one. Nevertheless, I believe it is essential to get us going at full war production efficiency.

The CHAIRMAN. Mr. Arnold, as chairman of this committee and on behalf of this committee I want to compliment you on what you have done in this case and in several others which we have touched on in this committee. You are doing a good job, and keep it up, and don't let anybody tell you that you are interfering with the defense program when you are doing a job such as this. We got these patents because you went after them, and for no other reason.

Senator Mead, have you any questions?

Senator MEAD. No.

The CHAIRMAN. Senator Ball?

Senator BALL. No.

The CHAIRMAN. Senator Burton?

Senator BURTON. Just one or two questions, Senator.

We have throughout this most interesting presentation made use of the term "cartel." It would be helpful to me if you would define "cartel" as you understand a cartel.

Mr. ARNOLD. A cartel is a combination of a number of companies and individuals to keep the business within that particular little ring, and to eliminate all competition which isn't dominated or controlled by them.

In this country we have often accomplished the same result by merger as the Germans do by cartels. One of the reasons for that is that it was thought, at least prior to the *Appalachian Coals case*, that companies couldn't get together, but they could merge. Mr. Justice Hughes, in the *Appalachian Coals case*, said that he could see no difference between companies joining in a mutually advantageous arrangement and companies joining in a merger. So I think that the convenient way of expression is the word "cartel."

The cartel system is an economic disease which attacks communities when people think they have got a mature economy and they want to make themselves secure and they don't want to be bothered by fighting a lot of other people who are producing what the other people call "distress" production, or ruinous competition. They want to keep the prices just as high as the market will bear. The net result of the operations of that vast system, of course, is to restrict production. What they really want to do is to get the highest prices, but you can't control prices unless you restrict production, and when you restrict production, unemployment starts. You can't get any parity between your farm and your agricultural elements of society. As the London economists, who were faced with the same situation in England after the fall of France, said, it is not the order of ideals that can give a country wealth in peace or strength in war. London economists, referring to the businessmen who had been trying to prepare England for war with Germany prior to the fall of France, said they weren't unpatriotic, but they were obsessed with an order of ideals and beset with divided loyalties, with one eye upon their future domination and the other eye upon the war itself, and they couldn't prepare for war.

The CHAIRMAN. That has been our complaint about dollar-a-year men.

Mr. ARNOLD. I don't know that the amount they get makes much difference. It really is an attitude. For instance, if a general in the Army said, "We want to fight this war. I am going to do my very best, but remember that the bigger the Army we get, the more guns we get, it is going to reflect and injure me after the war." That kind of general couldn't organize a good army. This is an industrial war, and industrial generals with this attitude can't organize that kind of army. I think it is really a question of their education and of public education.

I am willing to let bygones be bygones if we can clean this thing up, and I think that is the important thing. But I think it is important that we be not stopped in cleaning up things of this kind.

Senator BURTON. Mr. Arnold, I want to join the chairman in his expression of appreciation of your presentation of this case to us and particularly what I mentioned yesterday, the constructive treatment which you have given it, not so much of taking advantage of

one company, but of drawing a constructive plan from it. It is that matter that I wish to follow just a bit further.

It has seemed to me that we are facing at this time and will be facing after the war, a tremendous decision as to how to handle the great rush of private production, or the production of consumers' goods, which will take place at that time. We will be faced with a problem at that time, or now, of the relationship of government toward that production.

Might I ask first, in the totalitarian state what takes place in the relationship to the cartel?

Mr. ARNOLD. It is a funny process. For instance, the totalitarian state grows out of the cartel, in this way: Here is vigorous, independent, competing business. They get old. Public relations men get on the board of directors. [Laughter.] They are anxious for security. They want to keep only nice people in the business. So they say, "We are for competition." The German cartels are always full of statements that they are for competition—but it must be reasonable competition. In that way unreasonable competition is eliminated, prices are maintained, and finally, in Germany, of course, prior to Hitler, agricultural products were so scarce that you couldn't exchange them. I mean they were so scarce that there wasn't enough to eat in Germany, and yet they sold for ruinously low prices, and the cartel agreements kept industrial prices up, and the Germans were saying, "The only thing we can do is get an export market." They were just trying to dump the goods abroad—the same thing we were doing. Hitler came in and reversed the tendency, and here you find everybody dumping stuff—information and everything else—into Germany, and from that time, with that kind of revolution, you get that sort of efficiency.

That is not real efficiency. It is the efficiency, of course, which comes when a set of vigilantes move in after the police have completely broken down, but it isn't real efficiency. It isn't the efficiency of a democracy, and it leads only to one thing, and that is war. It is my belief that democracies can far outstrip that if they get rid of this system. And I want to point out that the war itself is going in the direction of the Sherman Act; that is, the war itself, if we don't permit these controls to continue, is going to break up the monopoly positions of all these companies. You are not only going to get the industry competition, the independent contractors coming up, the new businesses coming up, but you are going to get competition within these industries. Copper is no longer a monopoly, with aluminum in everybody's back yard and new processes being developed with allied steel and these light metals and plastic cards. So that the great problem for the future is simply to prevent these companies from controlling this production, from having the power to shut it down.

We frequently haggle with a company, and that is an attempt of the company not so much to get profits but to get control over future production. One company—I don't like to give the name unless I am subpoenaed—insisted on a provision that these plants built by Government funds must be in the control of that company after the war, with the power to shut those plants down.

Mr. FULTON. I don't think you need give the name. Mr. Arnold.

The CHAIRMAN. We all know it.

Mr. ARNOLD. That is a typical long-term lease, with various provisions to the disadvantage of the competitors. That is, I think, the long-run policy and a rather simple one, because every pressure that we have got is now for expanding production.

I don't know whether that extemporaneous remark is clear or not.

Senator BURTON. It is helpful, Mr. Arnold, but I want to push it this much further. We are fighting this war in order that we be not dominated by totalitarian methods, whether they be Fascist or Nazi or Communist. We are opposed to the totalitarian system of handling life. Therefore, as we approach the solution of this cartel problem, it is vital that we do not adopt the totalitarian system ourselves, thinking that that is the only way it can be controlled.

Therefore, I would like to have you emphasize a little more clearly than you have in your statement, the line that will exist between our Government dominating or taking over these products and these vital industries of the future and, on the other side, our Government supervising and encouraging the development of private industry within these industries.

Mr. ARNOLD. Well, I would answer that question in this way. Germany, of course, got tremendous efficiency through a revolution in which the government took over everything. Now I don't think we have got time to have such a revolution. You see, Germany got rid of hers. I think that we have got to win this war with the capitalistic system, and further than that, I think we had better start believing in the capitalistic system.

Senator BURTON. May I add there, when we get through the war, continue the capitalistic system.

Mr. ARNOLD. And continue the capitalistic system. Books like *The Managerial Revolution* throw up their hands and say there are going to be birth pangs of revolution and there is a bunch of managers coming in to run our economy as the only way you can run it is sapping the industrial morale of this country because we have been fighting against our enemies but not for our own system. I think one of the things we have got to get is the belief that this free competitive enterprise can produce goods, and get rid of the belief that the only people who can really do it is a set of cartels.

Senator BURTON. Mr. Chairman, without taking too much time, I would like to add at this point this further thought. It seems to me that the most encouraging thing as we look to the future is that, following the war, there will be the greatest demand in the history of the world for consumer goods. People will have been familiar with automobiles and refrigerators and houses and they will want them again. In response to that demand as we are turning back from defense industries to nondefense industries, there will be a tremendous crisis in this Nation, and the decision will be made at that time as to how we can meet that demand and whether we shall have the capitalistic system and free industry or whether we shall not. I take it, that your program that you have indicated here, with a view to setting up supervision of control and helpfulness in international business and national business, will meet that issue and come out with a capitalistic system.

Mr. ARNOLD. That is stated as I would like to have it stated.

Senator BURTON. May I ask just one more question by way of detail? Senator Brewster, of Maine, is unable to be here but asked



me to follow this item in particular. As I understand it, in some of these agreements a provision is made that after the emergency, the companies have an option themselves to repurchase the facilities that are built in order to meet the demands of the emergency. Is that contained in this decree here or contemplated by your plan?

Mr. ARNOLD. Our plan doesn't go into that at all. We don't seek to control any of the policies of purchasing agencies in making contracts with these people. All we have done is free the patents and give them royalty-free to anyone during the emergency. That is not taken up in the decree at all.

Senator BURTON. But there is nothing involved in this particular matter that you are reporting to us that throws light on whether or not there should be given an option to the individual company so that it will have a preference in acquiring for its own private uses these plants that have been developed with public funds.

Mr. ARNOLD. I think my views on that might be implied, but I always like to keep my testimony to my own shop.

Senator BURTON. Thank you.

Senator BONE. Mr. Arnold, can a system of business enterprise under our capital system be called a system of free enterprise when it is dominated by huge monopolies?

Mr. ARNOLD. Well, of course, it becomes 9,000,000 unemployed and high prices and low turn-over for manufactured goods, and I don't call that free enterprise. I call that the cartel system. Now, there are various stages of the disease. We never reached the advanced stage that they did in France or Germany, but we certainly had some of the symptoms.

Senator BONE. When you have a monopoly in electric power, a monopoly in the pharmaceutical field, a monopoly in aluminum, and steel, how can you denominate such a system as one of free enterprise? How can anybody characterize it as a system of free enterprise?

Mr. ARNOLD. I would say that there are the tremendous seeds of competitive enterprise in this country, greater than in any country in the world; someone needs to liberate them. I can't get anywhere in dissolving a company if there isn't an enormous amount of business energy which will rush in and take advantage of that free market. The pieces of the company aren't going to act much differently if there isn't that inrush of competitive enterprise. Never in the history of the world has there been anything comparable to the inrush of energy, invention, and progress since this war, and on an increasing scale since Pearl Harbor. So that I would say that we had a capitalistic system which was subject to a good deal of autointoxication, and that when we get rid of that, it will be energetic. I realize you can put the thing pessimistically or optimistically, but I am an extreme optimist with America on that sort of thing.

I find this, and I think you should remember this in fairness to the Standard Oil. The Standard Oil isn't a big man any more than the Government is a big man. I will show you plenty of people in the Standard Oil who will agree with everything I say. I will show you people who have been fighting for the Government's position in these various negotiations. It is a vast organization, and here a certain group, by methods, I think, of contacts and knowing people, and all, get into control. You have plenty of energy in competitiveness

in Standard Oil itself. It is a great organization and it has different types of leadership in it.

I know one organization which I have bitterly complained about. I discovered this letter in its files, and if the committee wants to investigate that organization sometime, the cartel arrangements, the letter will appear. It is very interesting. It is a letter from the patent attorney, and it is to the president of the corporation, and it says (I think I can quote it almost verbatim because I was quite struck with it)—it was written in 1923:

Your patents have been sustained oftener than I think it is safe to sustain them. Some day there is going to be a blow-up if you continue this kind of policy.

Now that man and that group of men just lost out in the elections and control of stock, and all that sort of thing. But the thing that makes me optimistic is that in the Standard Oil, in making this settlement, in every group in American industry we do find that energy, and so I say we have still got an energetic, vital capitalistic system, and we have just simply got to change a few people's ideas who have gotten into control at the top.

Senator MEAD. Mr. Arnold, I would like to have your opinion with reference to a plan for the change from a wartime to a peacetime economy. Recognizing the soundness of your competitive economy, and realizing the fact that to win this war we need an all-out efficiency, and as a byproduct of that all-out efficiency, coming from the policy of W. P. B. and priorities and other agencies of the Government, we have wiped out a great deal of competition. We have centralized in one typewriter manufacturing company, we will say, the production of all typewriters, whereas we have asked all the other typewriter companies to go into war production. I am just using that as an illustration. That is true in the field of refrigerators, electric fans, and many other articles. We have eliminated competition. We have centralized production in some instances in only one industry. That industry is now enjoying the field while the other industries are busy manufacturing war goods. Now, when the war is over, we ask the automobile man and the tank manufacturer and everybody else to go back into competition—competition with an organization that has been left in the field and has roamed the field and enjoyed the field; don't you believe we need in addition to a very strong Antitrust Division some plan for the rehabilitation of those industries that have been limited, liquidated in some instances, as a result of our all-out wartime efficiency?

Mr. ARNOLD. I am certainly not, and never have been, opposed to specific plans to meet specific situations. The only thing that I have ever taken a stand about is the idea that we need plans to plan for planners; that is, that we throw our Government over to a set of experts—and certainly there will be need for a great deal of readjustment after the war. I am not quite competent to say what those specific things should be, but certainly there will be that need. But I want to point out some of the counterbalancing things which may eliminate that need.

I have never felt that size or efficiency was in any way inimical to a free market. I think that we can let these concerns grow as big as they please. I will guarantee that some other concern will make it tough for them if it is simply on a competitive basis.

Now, let me take a few examples of what might happen. Let's take copper, for example. I am told that they will control 80 percent of the copper after the war. Will they have a monopoly? Well, you know what has happened to copper production restriction prior to this time, but what is going to happen after the war is that copper is going to have to compete with aluminum. Magnesium, which was only 2,100 tons before the war, is going this year to be 600,000 tons (these figures are all from memory), I believe from Mr. Batt.

The CHAIRMAN. We hope so, but we don't have much faith in it.

Mr. ARNOLD. In any event, here is a lighter car, here is a lighter typewriter; about half of these monopolies which will be created during the war are going to be obsolete after the war, if these new processes are in free hands. Now, I will give you my favorite example of that, if I am not boring the committee.

My favorite example of that is the automobile industry. The automobile industry certainly is big enough. It never restricted production. In 1925 I recall a series of articles saying that we had reached the saturation point in automobiles, and that the industry was going to collapse. All right, they got out their own currency, installment paper and kept pouring out cars. Pretty soon poor people had cars. In 1928 there was a series of prophecies made that the installment buying was thoroughly unsound as compared to these nice fat mortgages and New Haven Railroad stock and all those things [laughter] and that the automobile financing would create a collapse. They kept pouring out cars. Pretty soon the unemployed, the Oakies—everybody—had a car, and in 1938 during the thing we called a recession, there was the ironical spectacle of the Antitrust Division prosecuting the automobile companies for not letting banks and independent finance companies into the financing game. It was the only good thing that there was. It is like a reservoir. It pours out. We used to see people on relief, not having a decent house or a decent meal, running around in a car. It pours out of the sheer pressure, and we are going to have that kind of pressure.

The only thing that I am concerned about is to see that the power to shut it down doesn't exist. We are going to have that in everything. I am not concerned with the typewriter companies. I think there isn't anything easier to lick than a monopoly if you can cut out the coercion and infringement suits, and so on and so forth.

I have gone far afield.

Senator MEAD. I can see where the competition in metals is rather simple, but if you drive a man out of a specific industry and keep him out for the duration and let the consumers buy another article with another name, it is going to be rather difficult to rehabilitate the man you put out.

Mr. ARNOLD. It is for the man. There are going to be terrible tragedies for individuals in enterprise, but when you see the thousands of independent businessmen who grew up under the umbrella (I mean under the full production of automobiles) and you think of new plastics and plexi-glass for windows of houses. I think that for the economy we can be optimistic. For the individual I think we are going to have some stark tragedies, and there, I think, Senator, comes a different problem.

I testified, as you know, before the Small Business Committee.<sup>1</sup> What are we going to do to keep the small businessman, to build him up as a competitor? I am now painting, at the instance of Senator Burton, a kind of broad view, and I am not considering the problem that you are stating. Probably I am unduly minimizing it in order to get the other picture across.

The CHAIRMAN. Mr. Fulton, did you have any questions?

Mr. FULTON. Take that automobile situation which you mentioned. They were very successful, but even the automobile industry found some trouble, did they not, in the sense that certain materials were kept at price levels such that they could not use them even though they considered them to be desirable?

Mr. ARNOLD. Oh, yes, yes. The automobile companies were victims of monopoly. They couldn't get light metals; they couldn't get magnesium. They were victims of monopoly and pushed the cars out in spite of it.

Mr. FULTON. These cartel arrangements which related to such things as aluminum and magnesium and synthetic rubber and plastics and high-octane gasoline, could have an almost crippling effect on that great automobile industry.

Mr. ARNOLD. And at the time of the war cars had become pretty well standardized and stabilized. I am not an expert, but there doesn't seem to have been any real development in cars for several years. It was all gadgets and trimmings.

Mr. FULTON. You recall that in the twenties when they got higher-octane gasoline, the automobile engine performances entirely changed. With 100-octane gasoline, with magnesium, aluminum, and plastics, it would appear I should think, that the automobiles, allowed a free market, would be a completely different thing from what they were before.

Mr. ARNOLD. You won't recognize them. Here is aluminum, magnesium which is one-third lighter than aluminum, here is electric-welded steel which they are making great claims for which is now being built up by small steel companies. Here is 110-octane gasoline which is going to be 50 percent more efficient than 100-octane gasoline, lighter car, smaller engine, cheaper fuel, cheaper transportation.

Mr. FULTON. And they would have to retool anyhow because of the conversion to the war effort.

Mr. ARNOLD. They would have to rebuild to meet the demands, if you want to be imaginative, of this new light-metals age that may be coming.

Mr. FULTON. Going further in that, both with respect to the war effort and to the post-war effort, wouldn't it be true that if we can't

<sup>1</sup> Special Senate Committee to Study and Survey Problems of Small Business Enterprises pursuant to S. Res. 298, 76th Cong.

stop this kind of cartel arrangement combination, that the United States might be outstripped, whether it wins or loses?

Mr. ARNOLD. Oh, yes. These people can move in, these minor groups, and keep the production down and prices up; the farmer is going on producing, anyhow. They can't stop. They cry to the legislature and everything else, but they have great difficulty stopping. It is the failure to exchange. Put it in this way. If steel is a drug on the market after the war and copper is a drug on the market, they neither are going to be a drug on the market, because they can be traded. But if you restrict the production of steel and don't restrict the production of copper you can restrain. If we talk about export subsidies for copper we are going through the old depressing spiral.

Mr. FULTON. Going to a country like Germany, certainly at the time of these cartels, the German companies did not have finances that were of such tremendous character that they could threaten the American companies. The question I had in mind is whether in getting these cartels they got them really at the point of a gun, by simply saying that if the American companies didn't do it they would come over here and encourage the building of a plant which would sell at a small profit over cost.

Mr. ARNOLD. Yes; they said to the companies, "You fellows don't want much goods in America; we are going to send over technicians and skills and get these goods in America and get all these basic materials if you don't play ball with us." Our fellows said, "Well, now, let's play ball with them and get relieved of this"—what they called distress production. It was the same kind of operation, whether it was England or Sweden or any other country. These just happened to be with Germany.

Mr. FULTON. The point I was making, I wanted to know if you agreed that it wasn't that they had greater finances or greater technical skill, but simply that they were talking about coming over here and producing at cost, plus a small profit.

Mr. ARNOLD. That is right.

Mr. FULTON. And that if they did that it would destroy the type of market structure that had been built up here, of cost, plus a very large profit, on a small production.

Mr. ARNOLD. That, I think, is completely true, after Hitler. Before Hitler, both sides were anxious to do the same thing, restrict production at home and keep prices up. And when Hitler just took over the German system, then he began to use it, and play upon the shortsightedness of cartel leaders.

Mr. FULTON. And then, with the strength of Hitler, in that particular, would it not be true that as a result of these cartels certain portions of the world were left free to German enterprise?

Mr. ARNOLD. Oh, yes.

Mr. FULTON. But they were able to get trade balances; that is, at least they were able to get materials in exchange for their products simply because they could, therefore, go in free from our competition.

Mr. ARNOLD. That is exactly true. Indeed, I attribute practically all the German influence domination and balances in South America due to the fact that they had the drug business down there and, of course, as you know, that is an old story. We were shipping drugs

to fill German orders after the war in South America, building up more balances for them, pursuant to that cartel agreement.

Mr. FULTON. Then, it has all those defects in addition to that one you mentioned of freezing progress.

Mr. ARNOLD. Yes; and a couple of more that we haven't thought of.

Mr. FULTON. What are they?

Mr. ARNOLD. I said a couple more that I haven't thought of. I am sure there must be more.

The CHAIRMAN. Any further questions?

The committee will hear the Standard Oil Co. of New Jersey next Tuesday morning at 10:30. We stand recessed until that date.

(Whereupon the committee recessed at 12:03 p. m. until 10:30 a. m., Tuesday, March 31, 1942.)

# INVESTIGATION OF NATIONAL DEFENSE PROGRAM

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TUESDAY, MARCH 31, 1942

UNITED STATES SENATE,  
SPECIAL COMMITTEE TO INVESTIGATE  
THE NATIONAL DEFENSE PROGRAM,  
*Washington, D. C.*

The committee met at 10:38 a. m., pursuant to adjournment on Friday, March 27, in Room 318, Senate Office Building, Senator James M. Mead presiding.

Present: Senators James M. Mead (acting chairman), Tom Connally, Clyde L. Herring, Joseph H. Ball, Harley M. Kilgore, and Harold H. Burton.

Present also: Mr. Hugh A. Fulton, chief counsel; Mr. Charles P. Clark, associate chief counsel.

Acting Chairman MEAD. The committee will please be in order, and in view of the fact that we have two witnesses and we may seek information from one or both of them, I will swear them in together. You will both stand up.

Do you solemnly swear to tell the truth, the whole truth, and nothing but the truth, so help you, God?

Mr. W. S. FARISH. I do.

Mr. FRANK A. HOWARD. I do.

Acting Chairman MEAD. The committee will be in order and the witnesses will identify themselves to the recorder.

**TESTIMONY OF W. S. FARISH, PRESIDENT, STANDARD OIL CO., (NEW JERSEY), NEW YORK CITY, AND FRANK A. HOWARD, VICE PRESIDENT, STANDARD OIL CO. (NEW JERSEY), PRESIDENT, STANDARD OIL DEVELOPMENT CO., NEW YORK CITY**

Mr. FARISH. I think he has the identification in the past hearing. I will give it over if you like.

Acting Chairman MEAD. You may give it.

Mr. FARISH. My name is W. S. Farish, president, Standard Oil Co. (New Jersey).

Mr. HOWARD. My name is F. A. Howard, vice president, Standard Oil Co. (New Jersey); president, Standard Oil Development Co.

Acting Chairman MEAD. Now, Mr. Farish, you may proceed.

**STATEMENT OF STANDARD OIL CO. (NEW JERSEY) REGARDING I. G. FARBEN CARTEL AGREEMENTS**

Mr. FARISH. Gentlemen of the committee, I am grateful to you for the opportunity to be heard on behalf of the Standard Oil Co. (New

Jersey) in the matters you are investigating. I shall try as far as I can to confine myself to facts and to make my statement as short and direct as possible.

As I have read the hearings before the committee and the report of them in the daily press, certain specific charges against the company stand out. It seems to me that the press and others have gone beyond the evidence which the committee has heard, perhaps, and probably through misapprehension. I list the charges to which I refer as follows:

1. That as late as 1939 Standard was engaged in an effort to establish relations with Japan contrary to the interests of the United States and without the knowledge of our Government.

This charge is entirely untrue.

2. That after the fall of France, Standard assisted German interests to establish hydrogenation plants in occupied France.

This statement is untrue.

3. That Standard made shipments to Italian and German air lines in Brazil, contrary to the wishes of the State Department.

This is also unfounded.

4. That the German corporation—D. A. P. G.—the subsidiary of Standard, planned in 1938 or 1939 to erect at Hamburg a plant for producing aviation gasoline.

This is true and as a German corporation, operating in Germany—with which country we were not then at war—it could not have done otherwise.

5. That in July 1941 Standard received from I. G. an offer of \$24,000,000 in gold to be delivered at Lisbon for its Hungarian properties.

This is true; and under advice from the State Department and the Economic Defense Board the offer was not accepted.

6. That in 1939 Standard entered into an arrangement with I. G.—called The Hague agreement—adjusting their relations to the situations brought about by the war in Europe; in which be it noted the United States was not then involved.

This arrangement I shall explain fully. It was both reasonable and expedient, and in the interests of the United States.

7. Finally, that Standard had delayed, or retarded, or stifled the development of synthetic rubber in this country.

This statement has not a shadow of foundation. The facts and the record are exactly to the contrary. I shall speak from the record in discussing it.

Let me deal with these subjects in the order I have given, reserving until the last the question of rubber, which seems to be of the greatest present interest.

I preface my discussion by saying that any charges that the Standard Oil Co. or any of its officers has been in the slightest respect disloyal to the United States is unwarranted and untrue. I repel all such insinuations with all the vigor at my command. I do so with indignation and resentment. Moreover, I wish to assert with conviction that whether the several contracts made with the I. G. did or did not fall within the borders set by the patent statutes or the Sherman Act, they did inure greatly to the advance of American industry and more than any other one thing have made possible our present war activities



in aviation gasoline, toluol, and explosives and in synthetic rubber itself.

In our annual statement to stockholders for the year 1940 we made the following statement:

Standard Oil Co. (New Jersey), as an American corporation, owes its first duty to the United States. It has kept the Department of State fully informed and has cooperated closely with the Department in all matters of foreign policy. So long as this country maintains normal relations with the rest of the world, the company must also carry on its operations in a normal manner. The company cannot constitute itself judge of the rights and wrongs of international problems. It cannot impose embargoes nor break them, these being the functions of government, not of industry.

Our foreign subsidiaries are corporations chartered under the laws of the countries in which they operate. They must obey the laws of those countries. Would you please keep this in mind in considering the activities of my company in its foreign trade and in considering the Assistant Attorney General's criticism and my reply to that criticism on various instances discussed.

Senator BALL. Mr. Chairman, may I ask a question?

Acting Chairman MEAD. Yes; you may.

Senator BALL. I am interested in that memorandum to your stockholders in 1940, and I would like to know just what you did, what you informed the State Department of.

Mr. FARISH. Senator, if you will bear with me and give me a chance to present in an orderly way my case, if you please, I think you will find that question answered in detail.

Senator BALL. Well, specifically, for instance, when in 1935, according to the documents that Mr. Arnold introduced here, it became obvious to the Standard Oil that the Hitler government was having a considerable say-so in the I. G. Farben policies,<sup>1</sup> did you make any move at that time to inform our Government, our State Department, or any other department, of what was going on there?

Mr. FARISH. I think the record will show that the Government was fully informed of everything we did, and I ask, please, that you permit me to present the record, and then I will be pleased to answer any questions the committee has to ask.

Acting Chairman MEAD. Proceed; but, as chairman, I want to recognize the rights of members of the committee to refer to the record at any time, so far as I am concerned. This is quite an elaborate statement, and thoughts that are in our minds at the very beginning of the statement might not be there 24 pages afterward.

Mr. FARISH. All right, Senator. I only ask reasonable consideration to present my case without having to back-track and duplicate and waste time.

Acting Chairman MEAD. I am sure the time won't be wasted.

Mr. FARISH. The Japanese situation: The newspapers found material for sensational headlines in a cable dated September 11, 1939,<sup>2</sup> read under the impression that this was a message from the Standard Oil management to a representative in Yokohama. This message was not sent from New York City. This cable was sent by an American, the local manager in Yokohama, in an effort to advise the directors that immediate steps could be taken to maintain some part of our

<sup>1</sup> Supra, p. 4313.

<sup>2</sup> Supra, p. 4344 and Exhibit No. 436, appendix, p. 4675.

American oil business in Japan against a rising tide of nationalistic spirit. Our State Department and the American Ambassador in Tokyo over a number of years past had been kept fully advised of this development.

Mr. FULTON. Do you mean that they received a copy of that cable?

Mr. FARISH. I couldn't answer whether they received a copy of that cable or not, but they had been kept fully advised of the problems that we were up against in maintaining business in Japan.

Mr. FULTON. Were they informed of the substance of that cable?

Mr. FARISH. I don't know. I can't answer that. Nothing came of the proposal made in the cable, because the directors in New York turned down the suggestion.

With Japan our enemy, it is important that the committee understand that the Japanese never obtained a license for 100-octane gasoline by the hydrogenation process. Before the outbreak of war in 1939 the I. G. negotiated with them a license agreement involving \$2,000,000 in royalties. This involved our consent, which we withheld after placing the proposal before the State Department.

Senator BALL. Did that stop the project?

Mr. FARISH. Yes, sir.

Next, deliveries of aviation gasoline in Brazil: In his testimony Friday, the Assistant Attorney General quoted from documents relating to deliveries of aviation gasoline to an Italian air line in Brazil in 1941.<sup>1</sup> Deliveries to this air line were discussed with the State Department and with the American Embassy at Rio de Janeiro. No delivery was made except in conformity with the policy of the State Department.

Mr. FULTON. Does that mean that the State Department knew that your Brazilian subsidiary was furnishing aviation gasoline to the Italians?

Mr. FARISH. Yes, sir; and the State Department approved of every delivery that was made.

Mr. FULTON. Who in the State Department approved of that?

Mr. FARISH. Well, the file—I will give you the file, Mr. Fulton, but it is my judgment that that file is confidential and is for the committee's use but it should not be made public.

Mr. FULTON. The committee would like to know the name of the State Department official who was told that your subsidiary in Brazil was furnishing gasoline. That at least would not be confidential.

Mr. FARISH. I think several members here and the American Ambassador in Brazil, in Rio. You must realize that at that time our Government was attempting to get a coordinated political program in South America and particularly in Brazil, and we were acting under their instructions.

Mr. FULTON. What was the reason, then, for stopping deliveries from Aruba if the same thing was going to be done in another manner?

Mr. FARISH. I don't think deliveries from Aruba were ever stopped. The gasoline that went to Rio was shipped from Aruba.

Mr. FULTON. But I thought that Mr. Arnold read papers which indicated that the State Department was opposed to the delivery of gasoline from Aruba, and it was stated in the Standard Oil paper that it was decided it could be done through the Brazilian subsidiary.

<sup>1</sup> Supra, pp. 4344-4345 and Exhibits Nos. 437, 438, and 439, appendix, p. 4676.

Mr. FARISH. That is correct; and it was done through the Brazilian subsidiary, with the American Ambassador in Rio checking and passing on those deliveries.

Mr. FULTON. But what I wanted to know is why, in the first instance, should they say it shouldn't be done from Aruba at the same time that they were willing to approve it in a less obvious form in Brazil.

Mr. FARISH. I can't answer for anybody on that. The story of that is all clear and plain, and we will turn the file over to you, but all I want to register here with you gentlemen is we did nothing in that case except cooperate with the State Department. That record will give you that, and it is clear, and you can study it as you like, but I want to make the point that we made no deliveries that they didn't know about and hadn't checked.

Mr. FULTON. Thank you.

Mr. FARISH. Its attitude toward the company in this matter is shown in a letter written in September 1941—this was months after the instance cited—in which the State Department expressed its appreciation of the steps taken by the company to control supplies and deliveries of aviation gasoline to air lines in the other American republics. The Department stated that it had been gratified at our readiness to work toward the Department's objectives in cooperation with the Government. I presume that because of the confidential nature of this letter, it is inappropriate to offer it as an exhibit. It is, however, available for confidential examination by the committee.

Next, the German refinery: I call your attention to two points in connection with the reports which Mr. Arnold introduced in evidence<sup>1</sup> showing that in 1938 and 1939 our German subsidiary was planning to erect at Hamburg a plant for producing some 2,000 or 3,000 barrels per day of aviation gasoline and that we were cooperating in designing this plant.

Our German subsidiary is a German corporation managed and operated by German personnel. It is accountable to the German Government and to no other government. The German Government in 1938 and 1939 was expanding its aviation gasoline facilities, and our company was behind other American and British controlled companies in Germany's refining program. Under the circumstances, our German subsidiary could do nothing less than the others had done.

During 1938 and 1939 this country was not at war with Germany. In fact, every effort was being made to avoid involving ourselves in war. Commercial relations with Germany were continuing on a normal basis. Under these circumstances, refusal to assist in the design of this plant would have been unwarranted.

Next, synthetic toluol<sup>2</sup>: Among the processes which we acquired under the 1929 agreements there was one which had in it the germ of synthetic toluol production. All normal demands for toluol are met by the by-product toluol from coke production, which totals only about 30,000,000 gallons a year. In 1939 the Ordnance Department of the Army asked us whether we thought it would be feasible to produce on a large scale synthetic toluol for the manufacture of TNT from petroleum, pointing out that their war requirements would be far in excess of natural production. They said that to determine whether the

<sup>1</sup> Supra pp. 4342-4343 and Exhibits Nos. 431 to 434, appendix, pp. 4644-4671.

<sup>2</sup> Supra pp. 4337-4339 and Exhibits Nos. 421 to 423, appendix, pp. 4648-4650.

product would be of any military value they would need 20,000 gallons, so that it could be put through a regular commercial TNT plant to determine whether it would give operating troubles.

Prior experience had shown that some toluol which seemed all right on laboratory tests would not work commercially. The problem for us therefore, was not only to develop a laboratory process of producing synthetic toluol, but actually to turn out at least 20,000 gallons of the product. We first tackled the problem in our laboratories entirely at our own expense and came out with what we thought was a theoretically practical solution. We then agreed with the Army that we would undertake for them the production of the 20,000 gallons, which we estimated would cost about \$86,000, if they would pay half the estimated cost, or \$43,000. To work out this matter under the Army purchasing regulations they advised us that they would proceed as follows:

They would arrange for an experimental production of TNT from this experimental 20,000 gallons of toluol, at some TNT plant which they thought would have the best chance of working the problem out successfully if any difficulties were encountered. They picked a du Pont plant for this purpose. But the Ordnance Department had no appropriations which it could use for experimental purposes of this kind.

That is worthy of note, gentlemen. Here is the Ordnance Department of our Government that had no money to use in experimental purposes in as vital a thing as toluol.

They advised us that in form the transaction would be a regular purchase arrangement. They would ask for bids on TNT produced from synthetic toluol of petroleum origin and specifications which would result in their getting a bid from the du Pont company, and it would then be up to us to supply du Pont with toluol on the terms agreed on with the Army.

This plan was proceeded with. To make the 20,000 gallons of toluol required us to utilize the facilities of refineries at Bayway, N. J.; Baytown, Tex., and Baton Rouge, La., shipping trains of tank cars from one location to another. Instead of costing \$86,000, as we had estimated, this 20,000 gallons of toluol actually cost more than \$135,000, so that our loss was \$92,000. That is not material, but the important point was that the toluol was good. The nitration experiment in the du Pont plant turned out successfully, and as a result of this experiment, the cost of which was mostly borne by us, it was demonstrated that any required amount of toluol could be produced synthetically from petroleum in the United States as fast as the Army thought it necessary to build the plants for use of the process which we had developed.

The Ordnance Department then arranged with the Humble Oil & Refining Co., an affiliate of ours operating in Texas, where an important part of the experimental program had been conducted, to erect and operate an Ordnance Department plant for carrying out this process. This plant, costing about \$12,000,000, and having a minimum capacity of 30,000,000 gallons of toluol per annum, was successfully put into operation on schedule in 1941. The completion date of the plant was advanced 2 months as a result of Standard having done extensive engineering work on its own responsibility before the Army was able

to clear the contract. Standard Oil Development Co. offered this process for licensing throughout the oil industry, and when the Army desire to increase its toluol production it arranged for many additional plants, some of which are now far advanced or possibly in operation.

The only additional comment I have is that the writer of the letter of May 15, 1940,<sup>1</sup> which was called to your attention, was not familiar with the entire situation, as so often happens in an organization as large as ours, and had merely been told that this matter of the 20,000 gallons of toluol on which we were working at the time was an Army development on which we wished to say nothing whatever to anyone. This statement was somewhat embellished in the letter quoted and the embellishment was promptly criticized by others in the company who knew the facts. We were manufacturing only 20,000 gallons of toluol for the Government for use by du Pont—the company designated by the Government—in testing its effectiveness in TNT.

Senator BALL. Mr. Farish, on this process you finally developed, you didn't get the entire process from I. G. Farben?

Mr. FARISH. No, sir.

Senator BALL. You made considerable improvements?

Mr. FARISH. Yes, sir.

Senator BALL. Did you then turn back to I. G. Farben as you made them under your agreement?

Mr. FARISH. I don't think so because this was after we had acquired full possession of those patents.

Senator BALL. I see. Do you know whether I. G. Farben is making toluol, or any German companies, from petroleum?

Mr. FARISH. From petroleum? I do not. I presume not. Their source has been from coal, as I understand it.

Mr. FULTON. Mr. Farish, in that connection, isn't it true that the toluol was developed by the Standard Oil and not by the I. G. Farben?

Mr. FARISH. Yes, sir.

Mr. FULTON. In other words, it is a hydro-forming process and not a hydrogenation process.

Mr. FARISH. The hydro-forming process we got from the I. G. in the 1929 agreement.

Mr. FULTON. Then you mean you did not develop toluol but got it from the German company?

Mr. FARISH. No, sir. I mean exactly what I say, that we did develop it, but the German development came to us in the 1929 contract with the I. G., as I explained at the very beginning of that statement, and we proceeded to develop the actual manufacturing of it.

Mr. FULTON. You mean, then—

Mr. FARISH (interposing). The first sentence of my statement, if you will pardon me:

Among the processes which we acquired under the 1929 agreements there was one which had in it the germ of synthetic toluol production.

Mr. FULTON. Oh, then it is the germ that you got and on that you erected your own studies.

Mr. FARISH. Right.

Mr. FULTON. From which you found out how to make toluol.

Mr. FARISH. Right.

<sup>1</sup> See Exhibit No. 421, appendix, p. 4648.

Mr. FULTON. But you did not convey the understanding of how you were making it to the German company?

Mr. FARISH. To the I. G. company? I think as this came along at this date we did not. I will have to consult Mr. Howard to answer that more accurately.

Mr. FULTON. Mr. Howard, can you answer that?

Mr. HOWARD. So far as I know, the Germans never knew anything of our synthetic toluol development.

Mr. FULTON. Were you not obligated under your agreement to deliver information on that?

Mr. HOWARD. The exchange of information had ceased before this toluol development reached an advanced stage.

Mr. FULTON. Had you given them information on the intermediate stages?

Mr. HOWARD. So far as I know, we gave them no information whatever concerning our development of synthetic toluol at any time.

Mr. FULTON. And you would have known if you had, since that was in your department?

Mr. HOWARD. Well, I believe I would have, sir.

Mr. FULTON. Now, with respect to toluol, were you restricted by your agreement with I. G. Farben as to the ability to make it as a major product? In other words, was it a product that you had the right to make and to license the making of?

Mr. HOWARD. Addressing me?

Mr. FULTON. Yes.

Mr. HOWARD. That was a question which was difficult to decide under the contract, and we didn't worry about it at all. Whatever the contract meant, we had been asked to do this by the Army and we did it.

Mr. FULTON. Did your attorney ever give you an opinion that under the contract you had signed you had no right to do that—Mr. Loofbourov, I believe?

Mr. HOWARD. When the question was raised I believe the legal answer to it given by our attorneys was that we had no right to produce toluol directly by the I. G. process, but we could produce under the I. G. processes a toluol rich distillate, and from that toluol rich distillate it was our right to make anything we pleased without any regard to any I. G. contract. That is the way the matter was handled practically.

Senator CONNALLY. May I ask you a question, then?

Mr. HOWARD. Yes: Senator.

Senator CONNALLY. I understood you to say, regardless of your obligation you gave it to the Army and Navy. The Standard Oil is responsible for its obligations, I imagine, is it not?

Mr. HOWARD. Yes, sir.

Senator CONNALLY. I mean if you violated your contract to I. G. Farben Co., Farben itself, suffering damages, could recover them from Standard Oil, but in the meantime you were willing to take that risk in order to make that available to the Army and Navy.

Mr. HOWARD. Senator, yes, sir; we did it in that matter, and in Mr. Farish's statement you will see we did it in many other matters. No such matter was settled with reference to any contract we had with anybody else.

Senator CONNALLY. Under the present law, if you hadn't done it the Government could have taken it away from you anyway, couldn't it?

Mr. HOWARD. I don't know, Senator; we weren't interested. We always did what the Government asked us to, without regard to rights.

Senator CONNALLY. I am not intimating that you acted under any duress or fear that the Government would take it, but what I mean is that you did what later on the Government sanctioned in its law providing that the Government may take patents or property or anything to win this war. Is that right?

Mr. HOWARD. Yes, sir. I have always assumed that the law was that the Government might do anything it pleased concerning any patent it pleased, and that the only recourse of the patent owner was a suit in the Court of Claims.

Senator CONNALLY. All right.

Mr. FULTON. When did you decide to violate this agreement and actually give it to the Government, what year and month?

Mr. HOWARD. You mean when did we begin?

Mr. FULTON. Yes; when did you begin to build this toluol plant which would be in violation of your agreement?

Mr. HOWARD. In 1940. The plant was finished in '41. It was started in 1940, in the summer of 1940.

Senator HERRING. You did all your toluol investigation experiments with the cooperation of General Harris, of the Ordnance Department, didn't you?

Mr. FARISH. Yes, sir.

Senator HERRING. And he knew everything you were doing?

Mr. FARISH. We were doing it at his request.

Senator HERRING. How much did the invention of toluol mean to the production of TNT in this country right now?

Mr. FARISH. The one plant that is finished, Senator, the ordnance plant at Baytown, Tex., doubled the production of toluol in this country.

Senator HERRING. General Harris made the statement to me that without toluol, we would make 20 percent of the TNT we are now making.

Mr. FARISH. That is correct. You mean without synthetic toluol.

Senator HERRING. Yes. He worked with you all the time on this, did he not?

Mr. FARISH. Yes, sir. We acted on his instruction and at his request.

Mr. FULTON. Now, with respect to the license that you granted to the other companies, Mr. Farish, to make this synthetic toluol, is that license so restricted that in order to justify producing toluol, they must also get a license for the extraction of toluol under another German-held process, the Edeleanu process?

Mr. FARISH. I can't answer that.

Mr. HOWARD. We use the Edeleanu process, which originated in Germany, which was the first process suitable for the purpose that we knew of. As a matter of fact, the other people now making synthetic toluol are using, I think, three different processes of American origin.

Mr. FULTON. Are they entitled under the terms of the license that you granted them to operate without a license under the Edeleanu process?

Mr. HOWARD. Yes, sir. Our license had nothing to do with the extraction step.

Mr. FULTON. Your license does not license the extraction, does it?

Mr. HOWARD. No. We offer to everyone our extraction technique, but as far as I know, the licensees all chose to take different extraction techniques of other origin.

Mr. FULTON. If they had accepted the one you offered, it would have meant they would have obtained or would have had to obtain this license under the Edeleanu process.

Mr. HOWARD. The patents on that process had expired, I believe, at some time before that. We have never paid any royalty on the operation in question. I don't know whether others would have needed a license or had to pay royalty or not.

Mr. FULTON. Then why didn't you give them a license to extract as well as a license to produce?

Mr. HOWARD. We didn't own the extraction process.

Mr. FULTON. If it were common property, you owned the technic or know-how which you had developed.

Mr. HOWARD. We gave them the know-how.

Mr. FULTON. And your license could have been broad enough to cover the other field, could it not?

Mr. HOWARD. We couldn't license a process on which we had no proprietary right. We gave all the information on the process to anyone who wished to know about it. If he chose to use it, that was his right and his responsibility. We had nothing to say about it.

Mr. FULTON. Did you inform them that they would have to obtain a license or that they should negotiate for a license?

Mr. HOWARD. So far as I know, the question was never raised. The Edeleanu process in question is well known in the industry. Every refiner knows of it and knows its origin and who has control of it and the engineers who built it and everything else. It is a common process in the oil industry.

Mr. FULTON. Now with respect to that letter, I notice you say that the reason you told the Trojan Powder Co., or rather, caused them to be told, that there was no toluol, was that you had made a private arrangement with the Army that du Pont should have the bid, which would result in your furnishing the toluol to the du Pont Co. and their making the experimentation.<sup>1</sup> Is that correct?

Mr. FARISH. That is correct, sir.

Mr. FULTON. Was there any reason that the Trojan Powder Co. could not be informed that the Army had chosen to operate solely with du Pont?

Mr. FARISH. Why was there any reason?

Mr. FULTON. Yes; why was du Pont in effect given a monopoly on this?

Mr. FARISH. You will have to ask the Army Ordnance about that, sir.

Mr. FULTON. It was the Army Ordnance who suggested that they were going in with du Pont?

<sup>1</sup> See Exhibit No. 421, appendix, p. 4648.



Mr. FARISH. Yes, sir.

Mr. FULTON. Was it they who suggested that a false answer should be given to the Trojan Powder Co.?

Mr. FARISH. No; certainly not.

Mr. FULTON. Well, then, was it Mr. Park?

Mr. FARISH. As I explained, the gentleman who wrote this letter<sup>1</sup> had been told that this was a private matter, and he was to say nothing about it, and he elected to take the course he did to try to say nothing.

Mr. FULTON. Well, he went a little further.

Mr. FARISH. I agree with you.

Mr. FULTON. He said something which was expressly false.

Mr. FARISH. That is correct, sir, and as soon as some of the other gentlemen who knew the facts learned of it they criticized it, as the letter shows from the notations on it.

Mr. FULTON. And was the Trojan Powder Co. informed that a false answer had been given to them?

Mr. FARISH. I don't know.<sup>2</sup>

Acting Chairman MEAD. Mr. Farish, who is Colonel Harris? Is he with the War Department or W. P. B.?

Mr. FARISH. He is in the Ordnance Department.

Acting Chairman MEAD. With the Ordnance Department?

Mr. FARISH. The Ordnance Department.

Acting Chairman MEAD. He is not a dollar-a-year man?

Mr. FARISH. No, sir.

Acting Chairman MEAD. Was he ever in the employ of Standard Oil?

Mr. FARISH. No, sir.

Senator HERRING. Col. J. P. Harris has been in the Regular Army for many, many years. He is assistant to General Harris, over in Ordnance—under General Harris. He has been the explosives man for the War Department for 25 or 30 years.

Senator CONNALLY. May I intervene there? There are two of them, Colonel Harris and General Harris, both in Ordnance.

Mr. FARISH. That is correct, sir.

Senator CONNALLY. Colonel Harris is the technical and expert man on explosives, TNT, and munitions of all kinds.

Mr. FARISH. That is my understanding.

Senator CONNALLY. I have had frequent contact with him and I have talked to a very high functionary in the War Department about a matter, and he said, "Well, Colonel Harris is the man that I rely on and the man that decides all of these technical matters." I just vol-

<sup>1</sup> Ibid.

<sup>2</sup> Mr. Farish advised the committee that under date of April 17, 1942, he received a letter from the Trojan Powder Co. which appears in the appendix on p. 4797.

From this letter and its attachment the following is quoted: "As my letter to Colonel Harris so fully explains, the only interest that the Trojan Powder Co. had in synthetic toluene in May 1940 was in connection with its efforts to be of help to the War Department in the testing of the suitability of synthetic toluene for the manufacture of TNT, and just as the production of this first lot of toluene was conducted by your company (Standard Oil Co. (New Jersey)) at a financial loss we similarly assumed that the processing of this synthetic toluene for TNT under War Department invitation 672-40-1472 would be conducted at a loss by us, but that this would be justified because it would be helpful in the defense effort of our country."

From the letter attached to the letter of April 17th, (from Trojan Powder Co. to Colonel Harris of April 9, see appendix, p. 4797) the following is quoted: "As soon as I learned that I. E. du Pont de Nemours were willing to undertake this experimental work with synthetic TNT and were planning to do it, I dropped the matter with quite a feeling of relief."

unteer that for the record. He went in the War Department during the World War and has been in the Ordnance Corps ever since, and, I think, originally, many, many years ago worked for du Pont. I give that for the information of the Senator from New York.

Acting Chairman MEAD. Right there, Mr. Farish, do you know of any Standard Oil men who are now in the employ of W. P. B. as dollar-a-year men?

Mr. FARISH. Senator, I can't answer accurately; no. I know this and I state this, that all of the departments in Washington, practically, who are doing war work, or Army work, or Navy work, have called on our organization for help, and we have been very severely restricted—

Acting Chairman MEAD (interposing). The reason I asked—

Mr. FARISH. In our own efforts in furnishing technical men and assistants to work in this general effort of preparedness. I can get you a list, if you would like to know how many. They are asking for more right today.

Acting Chairman MEAD. The reason I asked that is that it seems to me there was an article in the paper recently that a former Standard Oil official is either in the W. P. B. or in one of the branches of the service that has to do with this subject under discussion. Whether his name was Wolf, or Harris, or what it was, it doesn't come to me, and I just wanted to find out if there was anybody that you know of.

Mr. FARISH. There probably is. Somebody stated that there was, but I don't happen to know the gentleman.

Acting Chairman MEAD. Do you happen to know him?

Mr. HOWARD. Yes, Senator. There is a young chemical engineer, named Wolf, who was taken by the O. P. M. Chemical Division as an adviser or expert on synthetic rubber about 2 years ago, or a year and a half ago, I should think.

Acting Chairman MEAD. His name evidently has been mentioned in the course of these hearings.

Senator BALL. Is he on a dollar-a-year basis?

Mr. HOWARD. No. I understand he is on regular salary. I can confirm that.

Mr. FARISH. May I go on, Senators?

Acting Chairman MEAD. He is getting what?

Mr. HOWARD. I am sorry. He is a dollar-a-year man, Senator. I thought he was on their pay roll.

Acting Chairman MEAD. And is he drawing a salary from the Standard Oil?

Mr. HOWARD. Yes; I assume he is.

Acting Chairman MEAD. Would you happen to know how much salary he is drawing?

Mr. HOWARD. Since he is a relatively young man, Senator, I should suppose it might be anywhere from \$2,500 up, not very far up.

Acting Chairman MEAD. Of course, that is rather vague. Would you furnish it to the committee?

Mr. HOWARD. Yes, sir; of course.

Acting Chairman MEAD. I assume there are some men who really get big pay in Standard Oil.

Mr. HOWARD. I have it here, Senator; \$5,600.

Acting Chairman MEAD. Thank you very much.

Senator CONNALLY. May I interject there? Your concern is not the only one that has dollar-a-year men in the departments, is it? My information is that the steel men, and the refrigerator men, and everybody else are down there.

Acting Chairman MEAD. The Senator didn't mean to emphasize steel men.

Mr. FARISH. May I make a comment?

Acting Chairman MEAD. I was speaking for the Senator from New York that time.

Senator CONNALLY. The reason the Senator asked the question was that the implication from the Senator from New York seemed to be that Standard Oil had a man down there——

Acting Chairman MEAD (interposing). That question has been asked of almost every industry here, so that you are not being shown any preferential treatment.

Mr. FARISH. We appreciate that, Senator. May I make a short statement on that?

Senator CONNALLY. Just a minute. I want to finish my question. His name was Wolf or Tiger or Lion or something, and he worked for Standard Oil. Now, as a matter of fact, nearly all these great industries do have dollar-a-year men. I don't approve of the practice at all, but still they are there, and I don't suppose that your company any more than any other company is to be singled out and held up to scorn in the program because that is the practice. I think they ought to be on the Government pay roll, and their loyalty ought to be alone to the Government of the United States.

Mr. FARISH. May I make a brief statement on that?

Acting Chairman MEAD. As I said before, that question has been asked of almost every industry.

Mr. FARISH. I appreciate that. I would like to——

Acting Chairman MEAD (interposing). We are not singling you out because you had a Wolf who got into the W. P. B. He may be a very fine man.

Senator CONNALLY. The implication was that he was just wearing wolf's clothing. [Laughter.]

Acting Chairman MEAD. But was a sheep at heart.

Mr. FARISH. Yes; and we resent the implication, Senator. I would like to make this statement for the benefit of the record right here.

In my opinion, this war that we are fighting is a war of production. It is a war that can be won only by industry and labor working together. It is perfectly obvious to any thinking man that this Government cannot make a major effort in this war without the benefit of the help of the technical organization and brains in industry. That is why they are in Government. That is why there are dollar-a-year men in Washington. They simply would be stalemated in their efforts to carry on war without these men.

I want to say to you that if you want to lose this war, send them from Washington, take them away, and your production will fall down and your war effort will fall down.

I want to say to you that they are volunteers just as much as anybody is volunteering in this war, and it doesn't come to my mind that they should be criticized for their volunteering and for their war efforts.

The only way you can do it otherwise, gentlemen, is to enlist, if you please, everyone, take away the private rights of every citizen of the United States and put them in the Army or the Navy—with Senators, Congressmen, and everybody else going into the war effort. That is the only way you are going to get along without the volunteer men from industry helping to fight the war in this preparedness effort.

Acting Chairman MEAD. We haven't any objection to the volunteer men of industry coming in to help in the war effort. There may be a division of opinion as to where their allegiance is in some instances, and there may be a difference of opinion as to the salary that they are to be paid by the Government. But in some instances this committee found, in the very beginning of its hearings, that they were not as interested in expanding production and in bringing competition into production as they should have been.

Mr. FARISH. Senator, I am not going to query that. I am only dealing with the principle.

Acting Chairman MEAD. All right, you may proceed.

Mr. FARISH. Next, offer to buy Hungarian properties<sup>1</sup>: In the latter part of 1940 we received inquiries originating with I. G. regarding the possibility of purchasing Maort, our subsidiary engaged in producing crude oil in Hungary. In July 1941, a representative of Standard discussed the matter with a representative of I. G. in Rio de Janeiro. The final offer by I. G. was \$24,000,000 in gold to be delivered to us at Lisbon. And I offer this exhibit for the record.

(The document referred to was marked "Exhibit No. 442" and is included in the appendix on p. 4721.)

Mr. FARISH. We kept in close contact with the State Department throughout the negotiations, fully informing it of all developments.

On July 30, 1941, an application was made to the Treasury Department to consummate this sale but was denied. On August 19, 1941, the matter was referred to the Economic Defense Board with the knowledge and approval of the Treasury Department. And I offer this exhibit.

(The document referred to was marked "Exhibit No. 443" and is included in the appendix on p. 4721.)

Mr. FARISH. In a memorandum accompanying the letter of reference to the Economic Defense Board, we pointed out that in our opinion the sale of the Hungarian property would be desirable because, with German domination over Hungary, the property would be taken by Germany if and when needed regardless of ownership; that if Germany should need Hungarian oil, the fields would be produced uneconomically, thus quickly destroying their value; and that even should the war end fairly soon, the Hungarian property probably could not be operated profitably to American stockholders. We stated that we would not consider under any circumstances anything which might be inimical to the interests of the United States. But our view was that the United States would be the gainer to the extent of whatever we might be able to realize from the Germans for this property. We assumed \$24,000,000 in gold brought to the United States would be a gain rather than a loss.

(The document referred to was marked "Exhibit No. 444" and is included in the appendix on p. 4721.)

Mr. FULTON. Is that French gold?

<sup>1</sup> Supra p. 4343 and Exhibit No. 433, appendix, p. 4668, which includes Exhibits Nos. 442, 443, and 444.

Mr. FARISH. It was going to be paid to us by the Germans. I don't know whose gold it was.

Mr. FULTON. I asked that question because in connection with certain matters that I studied sometime ago, I didn't believe Germany had that much gold.

Mr. FARISH. Of course, I can't answer that, Mr. Fulton. It was offered to us at Lisbon, and we had no way of knowing whose gold it was.

Senator CONNALLY. Gold is gold, no matter who it belongs to.

Mr. FARISH. So our Treasury seems to think, sir. We buy it from anybody and everybody.

Mr. FULTON. There might be some question as to the title of that gold, though, I assume.

Senator HERRING. We will have to subpoena Hitler and find out about that.

Mr. FARISH. Probably.

On September 22, 1941, we were advised that our application to the Economic Defense Board was not approved. This ended the matter. We lost the sale, and the Government of the United States lost the \$24,000,000 in gold.

Next, the French hydrogenation: Prior to the outbreak of the European war—

Senator BURTON (interposing). Mr. Farish, excuse me, but before leaving that Hungarian property matter, what has happened to those Hungarian properties now?

Mr. FARISH. They are being operated, Senator, by the designees or commissaires or whatever they call them, of the Hungarian Government.

Senator BURTON. That is, they have been seized on behalf of the German Government?

Mr. FARISH. Hungarian Government. That is the last word we had. Whether the Germans have them today or not, I can't answer.

Senator BURTON. Without any compensation, I take it.

Mr. FARISH. No compensation to us.

Senator CONNALLY. Technically, the Hungarian Government is not at war, and Germany hasn't conquered Hungary. So technically, they are going on, supposedly, with the Hungarian set-up. Is that right?

Mr. FARISH. That is my understanding, Senator.

Senator BURTON. May I ask, are they being operated, do you know, efficiently or economically? Have there been any reports on that?

Mr. FARISH. We have had no word from it since our manager came out with the American diplomatic corps from Hungary some months ago.

Senator CONNALLY. When I said Hungary wasn't at war, I meant wasn't at war with Germany. She has declared war on us, but we didn't declare war on Hungary. We just let her conduct her own little fight over there.

Mr. FARISH. That is correct.

French hydrogenation: <sup>1</sup> Prior to the outbreak of the European war discussions were going on in France between the International Hydrogenation Patents Co. of The Hague and French groups for

<sup>1</sup> Supra, p. 4342 and Exhibit No. 420, appendix, p. 4663.

a license for one or more coal and tar hydrogenation plants in France. Our French subsidiary and the French subsidiary of the British-owned Shell company, were interested in working out an arrangement to market any gasoline so made.

When the Germans took Holland, they put a German commissaire in charge of the business of the I. H. P.—that was the company at The Hague that owned these patents—which was owned 50-50 by the Shell and ourselves, although the I. G. were entitled to a 20-percent interest in its licensing revenues. Following the fall of France, and the cutting off of all imported oil supplies, the question of these coal hydrogenation plants became active. There were discussions as to whether it would be agreeable to us, in view of whatever equitable interest we might claim in the seized Dutch company, to permit the I. G. to take charge of these negotiations. The alternative would have been to leave them in the hands of the German commissaire controlling the Dutch company. This alternative did not appeal to us. We consulted the British-controlled Shell company, who were equally interested, and they took the position that they could express no opinion or take any action of any kind. The matter was therefore dropped. Our last American employee, the managing director of our French company, left France in January 1941, and we have no knowledge of what happened afterward.

The matters in question referred to occupied France.

I go next to the readjustments of German contracts: Our contracts of 1929 were to run until 1947. As you gentlemen doubtless know, contracts such as these are not, in law, abrogated, but merely suspended when the parties' nations are at war. The parties to such contracts must therefore find some way of getting along with their own business while the contracts are so suspended. We had been conducting the patent licensing business under the 1929 contracts through two American corporations, the Standard-I. G. and Jasco, in one of which we owned 80 percent and in the other of which we owned 50 percent, the Germans holding the other shares. These stock holdings represented roughly, although not exactly, the German participations in the licensing which were fixed by the contracts and not by the share holdings. Substantially all the patents in question had originated with the I. G. and the legal title to most of them, especially the foreign patents, had been left in the I. G. to avoid expense of transfers.

In conducting the licensing business the American licensing companies were necessarily in regular contact with the Germans, who were also represented on their boards. When the European war broke out, Germany was blockaded, and it was clearly impossible to continue to conduct the business as before, even though there was as yet no legal change in the position between the parties. There was also the possibility that sooner or later America might be drawn into the conflict. The only way we could see to meet this situation was to revise our contract arrangements with the I. G. as follows:

1. Obtain assignment of the legal title to every patent anywhere in the world in which we had an important interest, in order to protect that interest.
2. Get rid of the German interest in the American corporations, eliminate their control of the processes of making rubber and other synthetics in which we had only a minority interest, and remove all

necessity for any further consultations by us with the Germans in the handling of the patent licensing.

These objectives were accomplished as follows:

The patent assignments were obtained, and to avoid confusing the German interest with our own in these patents, they were taken not directly by our company but by an American trustee who was thus in a position to protect our interests, and who, if America were to go to war with Germany, would, of course, be subject to account to the Alien Property Custodian for any equitable interest of the Germans—as has actually happened.

The German 20 percent interest in the Standard-I. G. company was purchased at book value (\$20,000). This was only a management company, and the Germans still retained title to their 20 percent of the royalties collected by the company, but no longer had any voice in the management of its affairs.

Mr. FULTON. How was that title evidenced—the title to the royalties?

Mr. FARISH. The title to the German royalties?

Mr. FULTON. Yes; the German company's title to the royalties. How was that evidenced, and was it evidenced in such a way that the Alien Property Custodian could easily ascertain it?

Mr. FARISH. It was in the original contract, and it was listed for him; yes.

Mr. FULTON. It was listed where?

Mr. FARISH. It was listed for him as part of the German interest, having first been declared to the Treasury under some form that they required. I forgot the name.

Mr. HOWARD. TFR-300.

Mr. FULTON. So that the effect of that was to divest the Germans of the legal title to the patents, but to leave them with an equitable share of the royalties.

Mr. HOWARD. A fair share of the royalties.

Mr. FULTON. Under the contract that they had with you.

Mr. FARISH. That is correct.

A settlement in the case of Jasco, which owned the oil-chemical patents, was more difficult. Nobody could estimate with any accuracy what these patents might be worth, and Standard did not wish to speculate and pay to the Germans a large sum of money. A solution was found by way of a trade, under which we took over the entire ownership of Jasco—buying the German stock for a small cash consideration—and Jasco surrendered all of its claims on the processes for all countries of the world except the British and French Empires and the United States. These Jasco retained for itself. I. G.'s representatives agreed to this only on condition that their financial return would not be less than under the old arrangement. Since there was no possible method of immediately appraising the financial outcome of this trade, we agreed to a future readjustment which would work out the same financial result as the old arrangement, if it should appear at any time that the trade had been inequitable.

By the rearrangements made in 1939 therefore, the entire contract relations between the parties became a simple question of money payments. So long as America remained at peace, these money payments

were to be made to the account of the I. G., in a New York bank, subject, of course, to the exchange control of the United States Treasury Department. If the United States went to war, the same money would be paid directly to the Alien Property Custodian. There would no longer be any joint management or joint company operations and Standard would control everything in the United States, France, and England.

These are the arrangements, and the only arrangements, which we ever made or contemplated in connection with the readjustment of the 1929 contracts. They are the arrangements referred to in the paragraph quoted by Mr. Arnold from the letter of October 12, 1939, as "complete plans for a *modus vivendi* which would operate through the term of the war whether or not the United States came in." They are the arrangements which still left (while the United States was still at peace with Germany) the unavoidable difficulty of administering the I. G.'s minority interest in the oil patent rights without any personal relations or opportunity for exchange of views. It was this period, while the United States was still at peace with Germany, and this difficulty, which was referred to in the sentence—

It is difficult to visualize as yet just how successful we shall be in maintaining our relations through this period without personal contacts.

If America entered the war, the American Alien Property Custodian would obviously succeed to these I. G. interests and the difficulty would disappear, and I call attention to the fact that the Alien Property Custodian has actually vested himself with these interests.

The letter of October 12 was a five-page report by the first of our representatives to return from Europe after the outbreak of the war, covering the entire situation.<sup>1</sup> The letter was addressed to me as the president of the company, and copies were sent directly to all officers and directors of the company and to its general counsel.

Attention is also called to the remainder of the same letter, which shows:

1. That permission to conduct the negotiations in question was requested of the British foreign office by Ambassador Kennedy in London.

2. That the negotiator offered to the British Foreign Office, through the American Embassy, to conduct all discussions with the Germans in Holland in the presence of a member of the staff of the American Legation at The Hague.

3. That, on explanation of the nature of the arrangements and their purpose:<sup>2</sup>

the American Minister at The Hague telegraphed Washington explaining this situation and asking permission to have the papers—assignments of patent rights to be delivered by the Germans—after certification in Berlin by our Consulate, returned directly to Paris by the diplomatic courier. Fortunately, the Department of State had in its files at Washington a statement of our relations with the I. G. on these patent matters which I

the writer, Mr. Howard—

had worked out with Ambassador Wilson in Berlin in September of 1938, and which had been forwarded by him to Washington. The necessary permission—to have the State Department's own courier carry these assignments from Ber-

<sup>1</sup> See Exhibit No. 368, appendix, p. 4581.

<sup>2</sup> *Ibid.*, at p. 4585.



lin to Paris—from the State Department was therefore obtained in about 3 days.

Mr. FULTON. On that, Mr. Farish, I believe I have from the State Department the chart that your company furnished it. Is this a photostatic copy of it?

Mr. FARISH. Yes, sir.

(The chart referred to was marked "Exhibit No. 445" and is included in the appendix on p. 4724.)

Mr. FULTON. Do you regard that chart as correct, particularly the part in there referring to a minority interest in I. G. Farben, on the right-hand side?

Mr. HOWARD. I am sorry, Mr. Fulton. I didn't get that.

Mr. FULTON. I say, is that chart correct, particularly where it describes the interest of the I. G. Farben as being a minority interest, on the right-hand side of the chart?

Mr. HOWARD. The chart is so complicated, I am sorry, I don't see what you are referring to.

Mr. FULTON. Are you having difficulty understanding it? Would the State Department understand it?

Mr. HOWARD. Well, it took about 2 hours to review it with them.

Mr. FULTON. Who wrote in this word "minority"?

Mr. HOWARD. Oh, that is on the left-hand side of the chart, Mr. Fulton. I am sorry.

Mr. FULTON. I was dealing with my right and your left. Who put in the word "minority" on that chart?

Mr. HOWARD. Why, I don't know who put it in, but I believe it is correct.

Mr. FULTON. The control is a minority control?

Mr. HOWARD. No; it is not control. It is a minority interest. The control is owned by the Standard Oil of New Jersey and the Standard-I. G. Co.

Mr. FULTON. There are two things. One is control and the other the interest in profits. They are separate under the arrangements you made, are they not? Was it the minority control as distinct from profits?

Mr. HOWARD. In Standard-I. G. Co. both the stock and the profits in general followed the rule: 80 percent to Standard Oil of New Jersey, 20 percent to I. G.

Mr. FULTON. And as to the profits, also?

Mr. HOWARD. Yes, sir; as a general rule.

Mr. FULTON. And now, from what company does that line run to what company?

Mr. HOWARD. You mean what company of the Standard Oil group?

Mr. FULTON. Yes; what two companies are connected by the line?

Mr. HOWARD. There are two lines: one running from Standard-I. G. Co. to I. G. Farben, and one running from Standard-I. G. Co. to S. O. Co. of New Jersey. Those were the two stockholders and the two participants in the royalties.

Mr. FULTON. May I have that back for a minute? Now, from the I. G. Farben running to the Standard-I. G. Co., you say that definitely was minority control?

Mr. HOWARD. Yes, sir; not a minority control. No, sir, Mr. Fulton. A minority interest.

Mr. FULTON. And control was definitely in the S. O. Co. of New Jersey.

Mr. HOWARD. That is correct.

Mr. FULTON. Now, could the S. O. Co. of New Jersey issue a license without the consent of I. G. Farben?

Mr. HOWARD. Oh, yes; through its control of Standard-I. G. Co., of which it owned 80 percent of the stock.

Mr. FULTON. And that could be done despite the I. G. Farben agreement that you had?

Mr. HOWARD. To the extent that the equitable interest in the patents in question was in the Standard-I. G. Co. The patents were sometimes divided, part of the patent right remaining with the Germans themselves and part going to the Standard-I. G. Co. The part that went to Standard-I. G. Co. was within the control of that company. The part the Germans retained for themselves was in their sole control.

Mr. FULTON. Where was the part that the Germans retained within themselves referred to under I. G. Farben? I am talking particularly of synthetic rubber and chemicals.

Mr. HOWARD. That wasn't in Standard-I. G. Co. at any time, Mr. Fulton.

Mr. FULTON. That was still in I. G. Farben?

Mr. HOWARD. That was in Jasco.

Mr. FULTON. And where is Jasco on this chart?

Mr. HOWARD. Jasco is not shown on the chart.

Mr. FULTON. Does it show anywhere in that chart that on chemicals the German interests had the control?

Mr. HOWARD. No; there is no reference to Jasco on the chart at all. That was a detail of the arrangement which the chart didn't attempt to cover.

Mr. FULTON. As handed to the State Department in connection with these patents which we are discussing now, which covered also these chemical aspects, the chart contains no reference to that phase of the agreement with the German company?

Mr. HOWARD. Apparently not.

Mr. FULTON. Why was that left out?

Mr. HOWARD. Why, I assume because the chart was already so complicated that neither you nor I can easily see what it means now.

Mr. FULTON. Yet in handing it to the State Department I believe you said, and I am quoting—<sup>1</sup>

It is believed that the chart will be found to be largely self-explanatory and to provide a convenient description of the control exercised over these industries in Germany.

Mr. HOWARD. In Germany?

Mr. FULTON. Yes; the control which Germany exercises over the industries in question.

Mr. HOWARD. I am sorry, I didn't think you read that. I thought you read, "over the controls of these processes in Germany."

Mr. FULTON. That is correct.

Mr. HOWARD. The chart doesn't have any reference to Germany in connection with Standard-I. G. Co. Standard-I. G. Co. had no German rights.

<sup>1</sup> See Exhibit No. 446, appendix, p. 4725.

Mr. FULTON. But I am talking about the relations. As I understand your statement, you are presenting to this committee, you are saying—and I am quoting from the statement—<sup>1</sup>

Fortunately the Department of State had in its files at Washington a statement of our relations with the I. G. on these patent matters which I had worked out with Ambassador Wilson in Berlin \* \* \* and which had been forwarded by him to Washington.

I was trying to ascertain whether the State Department, no matter how carefully they looked over this chart, would have ascertained the fact that as to chemicals, particularly rubber, the control was in the German company.

Mr. HOWARD Well, I can't tell you what the State Department would have concluded from the chart, because the chart was accompanied with a report, following an explanation of some hours to the Ambassador and to his second secretary. They prepared that report, and I don't know what they said about it.

Mr. FULTON. Did you see the report?

Mr. HOWARD. No; I never saw the report.

Mr. FULTON. I have what purports to be a copy of it, and it doesn't contain any reference whatever—if you care to read it—to the fact that you had in the I. G. a control over the rubber.

(The document referred to was marked "Exhibit No. 446" and is included in the appendix on p. 4725.)

Mr. HOWARD. If the purpose of your question, Mr. Fulton, is to indicate we were holding ourselves out as the owner of the synthetic rubber process in the United States, all I can say is that we never have held ourselves out as the owner of that until we acquired it.

Mr. FULTON. My purpose is simply to ascertain whether you informed the State Department at this time that your statement refers to the fact that you have given them information, if you informed the State Department of the majority control in the petroleum industry, including rubber.

Mr. HOWARD. I should think that I would, Mr. Fulton.

Mr. FULTON. It doesn't appear in the information that you furnished in the form of a chart, and it doesn't appear in the ambassador's letter.

Mr. HOWARD. Well, I don't think the ambassador was concerned, nor was I concerned at the time, with the situation in the United States, which has always been in the control of this Government. What the ambassador was concerned with was the situation in Germany, which was out of the control of this country, and that was the main purpose of the discussion.

Mr. FULTON. Of The Hague agreement, which I understand you are tying in with this information you furnished the State Department? Because as I understood you in your statement, The Hague agreement related more to the United States than it did to any place else.

Mr. HOWARD. The Hague agreement related to the world outside of Germany.

Mr. FULTON. Yes; particularly outside of Germany.

Mr. HOWARD. Solely outside of Germany.

<sup>1</sup> Exhibit No. 368, appendix, p. 4584, at p. 4585.

Mr. FULTON. And it is in that connection that you referred this committee to the material that you furnished the State Department, is it not?

Mr. HOWARD. I referred the committee to that only by saying that the minister at The Hague telegraphed the Department in Washington, referring them to this memorandum as the reason for his request to send the assignments of patents by diplomatic courier to France.

Mr. FULTON. But as far as the State Department being informed of your relations, particularly of the question of who had control of it, that was not done in the two documents that are in the files of the State Department, was it?

Mr. HOWARD. I see no reference whatever to the detail of that arrangement in these documents.

I would like to point out that you have here a chart and a one-page letter summarizing a 2-hour report made to the Department.

Mr. FULTON. That is precisely the chart and the letter to which you referred in your statement, is it not? The one at the bottom of page 11 of your statement?

Mr. HOWARD. That is the first time I have seen the chart since I left it, and the first time I have ever seen the report.

Mr. FULTON. That surprises me, as I understood you had received a copy from the State Department.

Mr. HOWARD. I have not.

Mr. FULTON. This last week?

Mr. HOWARD. No; the State Department did not give me a copy of the report.

Mr. FULTON. But of the chart?

Mr. HOWARD. No, sir; nor of the chart. They gave me a paraphrase of the report.

Mr. FULTON. That is all I had on that.

Senator KILGORE. Mr. Chairman, I would like to ask just one question to clarify those French hydrogenation plants. You closed that part of your statement with these words: "The matters in question referred to occupied France." Is that meant to imply that there were hydrogenation plants placed in unoccupied or Vichy France at that time by any of your subsidiaries?

Mr. FARISH. No, sir.

Senator KILGORE. All right. I just wanted to clarify that.

Acting Chairman MEAD. Mr. Farish, before we proceed further—and I presume we may have to take a recess—in connection with the offer to buy Hungarian properties, you left the impression, with me at least, that the Government turned down a very attractive offer made by Farben in the amount of \$24,000,000 in gold, and that the Treasury refused to allow you to consummate the sale, and that the Government would have been the gainer.<sup>1</sup>

Mr. FARISH. Not the Government—the American Nation.

Acting Chairman MEAD (reading):<sup>2</sup>

Our view was that the United States would be the gainer \* \* \*.

It occurred to me at that time that the impression might be gained that the authorities of the Treasury just arbitrarily turned down what

<sup>1</sup> Supra, p. 4372.

<sup>2</sup> Ibid.

was a very valuable gain for the country. I presume they had in mind, among other matters of interest, the fact that your company might take a substantial loss in the transaction. They might have taken into consideration the fact that there wasn't a shortage of gold coming into the country, it being buried down in Fort Knox. They may have taken into consideration many matters that would, if properly analyzed, reveal the fact that the Government wouldn't have been the gainer by that transaction. But at first blush——

Mr. FARISH (interposing). We are paying for gold right along, sir. We are buying it.

Acting Chairman MEAD. That is perfectly all right.

Mr. FARISH. That doesn't fit in with the thought that it isn't worth something.

Acting Chairman MEAD. And your taking a loss on transactions where losses can be sustained. There might have been a substantial loss.

Mr. FARISH. It was a loss to us.

Mr. FULTON. How much of a loss would that have been, Mr. Farish?

Mr. FARISH. To us!

Mr. FULTON. Had you taken the \$24,000,000, how much of a loss would you have been able to set up for tax purposes?

Mr. FARISH. On our properties? I don't know. I had never even considered that.

Acting Chairman MEAD. Perhaps the Treasury did.

Mr. FARISH. We had a gain, Mr. Gallagher suggests to me. We would have had to pay taxes on that money if we had gotten it, because our properties didn't cost us that much.

Acting Chairman MEAD. I just want to bring out the fact that the Treasury probably looked into all sides of the question before they turned it down.

Mr. FARISH. I don't know what they did, sir. I know this: There were three or four of the high officials of the Government that we consulted on the matter who thought our position was sound and that this country would be the gainer and that we ought to be permitted to make the trade. If you please, several arrangements of that kind were made and approved by the Treasury before we came to bat. It just so happened that when we came to bat, the sum was large and some formal decision was going to have to be made, and we were the ones who brought about the decision that no more gold for foreign properties in alien countries would be taken. We just happened to be the sufferers.

Acting Chairman MEAD. And I just merely point out that the Treasury Department had good reason, perhaps, for making that decision.

Mr. FARISH. I don't think they had, sir. I don't know what their reasons were, but I don't think they had. They just didn't want to take any more gold for foreign properties.

Mr. FULTON. Had you not had that transaction studied by your lawyers from a tax standpoint?

Mr. FARISH. I don't think we had.

Mr. FULTON. You would prefer to go through with a \$24,000,000 transaction without having it submitted for income-tax advice?

Mr. FARISH. Yes, sir; because we thought we were getting something for nothing. Our properties are gone, anyway.

Mr. FULTON. Are they, necessarily?

Mr. FARISH. It looks like it. They won't be worth anything when we get them back, if we ever get them back.

Mr. FULTON. Why wouldn't they be worth something?

Mr. FARISH. They would be dissipated. These oil fields would be dissipated and ruined.

Mr. FULTON. You have no faith, then, in the United States being able to assist its citizens in recovering their properties that are unlawfully taken?

Mr. FARISH. No; the point I am making, Mr. Fulton, is that these are producing oil fields, and if this war lasts several years these oil fields will be dissipated and the properties will be of little value.

Mr. FULTON. You have a claim against the Hungarian Government which you consider would be of little value?

Mr. FARISH. That is correct, sir.

Mr. FULTON. But you did not submit this to lawyers for tax purposes?

Mr. FARISH. I don't know how thoroughly it was studied for tax purposes or not. All I know, from my point of view, is that the \$24,000,000 represented a good bit more than the cost of the properties, and therefore we would have had a gain and we would have had to pay taxes.

Acting Chairman MEAD. In view of the fact, Mr. Farish, that you take issue with the Treasury Department and contend that they made an unwise decision, the committee will ask them for their side of the controversy.

Mr. FARISH. All right, sir.

Acting Chairman MEAD. Any further questions?

Mr. FARISH. Senator, may I state my contention was that the decision was unwise for us. I don't know how wise it was from a Treasury point of view.

Acting Chairman MEAD. Of course, you left the impression a moment ago that it was an unwise decision on their part.

Mr. FARISH. I don't mean to——

Acting Chairman MEAD (interposing). I think the record——

Mr. FARISH. Leave that impression. The point I am trying to make is that up to that time these arrangements had been approved. In our case they were not approved.

Acting Chairman MEAD. I was just answering your first thoughts—not your afterthoughts.

Mr. FARISH. I meant no reflection.

Acting Chairman MEAD. All right.

In view of the fact that we have an important calendar on this afternoon, the committee will adjourn until tomorrow, to meet in this room at 10:30, and we will have to advise Mr. Jones that his appearance will be put off until Thursday.

(Whereupon, at 12:05 p. m., the committee recessed until 10:30 a. m. Wednesday, April 1, 1942.)

# INVESTIGATION OF NATIONAL DEFENSE PROGRAM

WEDNESDAY, APRIL 1, 1942

UNITED STATES SENATE,  
SPECIAL COMMITTEE TO INVESTIGATE  
THE NATIONAL DEFENSE PROGRAM,  
*Washington, D. C.*

The committee met at 10:39 a. m., pursuant to adjournment on Tuesday, March 31, in room 318, Senate Office Building, Senator Harry S. Truman presiding.

Present: Senators Harry S. Truman (chairman), Tom Connally, James M. Mead, Joseph H. Ball, Clyde L. Herring, Harley M. Kilgore, and Harold H. Burton.

Present also: Senator Joseph C. O'Mahoney, Wyoming, Mr. Hugh A. Fulton, chief counsel; and Mr. Charles P. Clark, associate chief counsel.

**TESTIMONY OF W. S. FARISH, PRESIDENT, STANDARD OIL CO. (NEW JERSEY), NEW YORK CITY, AND FRANK A. HOWARD, VICE PRESIDENT, STANDARD OIL CO. (NEW JERSEY), PRESIDENT, STANDARD OIL DEVELOPMENT CO., NEW YORK CITY—Resumed**

## DIFFICULTIES IN DEVELOPMENT OF SYNTHETIC RUBBER

The CHAIRMAN. The committee will come to order.

Mr. Farish, I believe you were presenting a statement yesterday, if you will proceed.

Mr. FARISH. Yes, Senator.

Senator MEAD. Mr. Farish, is this the identical statement we had yesterday? I was wondering if there were any changes or extensions.

Mr. FARISH. Senator, we have the complete statement that we had yesterday, and the statement for today is the same, with a slight modification or change at the end of the statement. So I think it is best for me to read my statement and continue as we had it yesterday, and when we reach the point where there is a substitution, I will call your attention to it.

Senator MEAD. All right, proceed.

Mr. FARISH. We got as far yesterday, gentlemen, as the synthetic rubber.

Standard has no apologies to make for the part it has played and is now playing in the development of synthetic rubber. It brought to this country from Germany the I. G. buna rubber invention now being used in the Government rubber program. Should this pro-

gram be supplemented by butyl rubber, it will be because Standard, through its experience gained in working with vistanex, another I. G. invention, succeeded in developing the butyl formula.

Let us look at the record of Standard's efforts to advance synthetic rubber in the United States. In January 1939 a year and a half before the Advisory Commission to the Council of National Defense became interested in the Nation's rubber supply, Standard, in its effort to find a Government agency to deal with, sought out the Army and Navy Munitions Board and gave it full information—by that I mean everything the Government could make practical use of—covering Standard's synthetic rubber activities. Remember, this was in January 1939. The information furnished the Government at that time included full data about Standard's own butyl rubber as well as information concerning the status of the I. G. buna development.

The CHAIRMAN. This information had also been given to I. G. Farben, hadn't it, Mr. Farish?

Mr. FARISH. We got some of it from them; yes.

The CHAIRMAN. I mean your information about butyl rubber had also been given to I. G. Farben.

Mr. FARISH. Yes, sir.

Senator O'MAHONEY. Mr. Chairman, may I ask a question?

The CHAIRMAN. Certainly.

Senator O'MAHONEY. Mr. Farish?

Mr. FARISH. Yes, Senator.

Senator O'MAHONEY. As I listened to that statement of yours in which you say that in January 1939 certain information was furnished to the Government of the United States, I thought of the statement made by Mr. Arnold in his testimony before this committee the other day in which he purported to quote from The Hague memorandum. Let me read what he said:<sup>1</sup>

On October 16, 1939, after the Hague memorandum \* \* \*

I was mistaken. He wasn't quoting from the memorandum, but from a letter from I. G., apparently—

\* \* \* I. G. Farben gave the following instruction to Standard—

I quote—

"As discussed between us, we ask you to approach Wilmington (meaning (du Pont)) before starting to exploit buna patents."

This instruction was given even though in the very same telegram we find the following, I quote:

"Referring to your question with respect to technical information about buna, we have to inform you that under present conditions we will not be able to give such information."

The date of that instruction from I. G. to Standard was apparently October 16, 1939.

In the light of that, the question that suggests itself to my mind is whether, in its disclosures to the Army and the Navy, that is, to the Government of the United States, Standard was able to disclose the so-called know-how and whether, as a matter of fact, that was not withheld by I. G. Farben.

<sup>1</sup> Supra, p. 4324 and Exhibit No. 412, appendix, p. 4639.



Mr. FARISH. Is that the question, Senator?

Senator O'MAHONEY. Yes, sir.

Mr. FARISH. Well, I can answer that best in this way. That is all covered in the memorandum and we shall come to it as we progress, but to stop now and try to answer your question, I will say this: that the know-how that you speak of I think we had here in the United States, the know-how meaning the polymerization of butadiene with styrene to make buna rubber. The best evidence of that is that several of the rubber companies were doing it, and the first run of our commercial plant, when we did build it, resulted in commercial rubber. So we didn't lack the know-how, but what we did lack, perhaps, from the Germans was the technical design of a plant that they were operating, which has been financed by the German Government.

Senator O'MAHONEY. Now what do you mean by the "technical designs of plants"?

Mr. FARISH. That means a plant design, blueprints, and so on, of their own operations.

Senator O'MAHONEY. Then I understand you to testify that at the time you were making this disclosure to the Government of the United States, you actually had not received from I. G. the information which would enable you or enable the Government of the United States to build the sort of plant that was necessary to produce the rubber?

Mr. FARISH. No, sir; I didn't say that.

Senator O'MAHONEY. Well, I was trying to interpret what you meant, of course.

Mr. FARISH. I said we didn't receive from I. G. the technical designs of the plant that they were operating.

Senator O'MAHONEY. Without that technical design could you have built it?

Mr. FARISH. We did build one, and as I stated, the first run through the plant we did build resulted in commercial rubber.

Senator O'MAHONEY. How much?

Mr. FARISH. How much? The plant is a small plant, of 2,000 tons, at Baton Rouge.

Mr. FULTON. In that connection, Mr. Farish, in direct answer, I think, to the question of Senator O'Mahoney, are you familiar with this letter of October 20, 1939, to Mr. Howard?<sup>1</sup>

Mr. FARISH. Let's have it.

Mr. FULTON. And particularly with the first paragraph of that letter, where you are apparently being informed that you had no information on that buna for 8 years from Germany. First, were you familiar with that letter when you answered Senator O'Mahoney that you were being given full information?

Mr. FARISH. I don't recall this letter.

Mr. FULTON. Well, now, is that letter—

Senator CONNALLY (interposing). Let him answer that, Mr. Chairman. I think he ought to be allowed to answer one question before you pop another.

Mr. FULTON. I think he answered that.

Senator CONNALLY. I don't think he did.

<sup>1</sup> See Exhibit No. 396, appendix, p. 4623.

Mr. FARISH. I haven't finished: no, sir.

The CHAIRMAN. Proceed, Mr. Farish.

Mr. FARISH. I am not familiar with this letter, and I don't know what the reference means.

Mr. FULTON. Would you please read to the committee the first paragraph of that letter?

Mr. FARISH. This is a letter to Mr. Howard from Mr. M. B. Hopkins.<sup>1</sup>

You asked about the amount of technical information available on manufacture of buna rubber. Excepting information Mr. Murphree was able to get when he went through an I. G. plant 8 years ago, the only knowledge our people have is derived from published patents.

Mr. FULTON. That is the point that I was particularly referring to. When you answered Senator O'Mahoney to the effect that you had been given information, were you familiar with this letter to Mr. Howard, stating that excepting information which you got 8 years before, in 1931, the only knowledge that your people had was derived from published patents?

Mr. FARISH. No, sir; I wasn't familiar with that letter.

Mr. FULTON. In the light of that letter, do you wish to retract the statement you made to Senator O'Mahoney?

Mr. FARISH. That is my understanding of the situation—the statement I made to Senator O'Mahoney—in talking with these gentlemen.

Mr. FULTON. Mr. Howard, this letter was written to you by Mr. Hopkins. Who was Mr. Hopkins?

Mr. HOWARD. He is the staff head of the chemical manufacturing activities for the company.

Mr. FULTON. And as the staff head of the chemical manufacturing activities of the company, would he be familiar with the buna rubber situation?

Mr. HOWARD. Yes.

Mr. FULTON. Is it your position that Mr. Hopkins was in error in writing this letter?

Mr. HOWARD. No; I only think his statement is somewhat incomplete. So far as it goes, the statement is entirely correct, but it is not complete.

Mr. FULTON. If it is entirely correct, the statement is that, excepting that information that they had from a visit 8 years before, they had no information except what any man in the street could get by looking at the patents open to the public. It is either a correct or a false statement, isn't it, Mr. Howard?

Mr. HOWARD. Well, that is a correct statement, Mr. Fulton, but the man in the street is supposed to be able, if he has skill in the art in question, to carry on any process covered by valid United States patents. We knew that the rubber companies of the United States, were based upon these patents, carrying out the same process themselves. We had full confidence in our ability to do so. That confidence proved to be justified, because the very first plant we built, when we acquired the patent rights, when operated on the first run, made it successfully.

<sup>1</sup> Exhibit No. 396, appendix, p. 4623.

Mr. FULTON. Let me see if I understand you correctly. As I understand you, you mean the patents as published were sufficient so that any good rubber chemist, whether Standard Oil or Goodrich or Goodyear, could proceed from there to make good buna rubber.

Mr. HOWARD. That is correct, and if that had not been the case, the patents would have been of no value whatever.

Mr. FULTON. That being the case, then what you mean is that although you got no information from Germany, you didn't need it. Is that correct?

Mr. HOWARD. On that particular matter we needed no information from Germany. That is correct, Mr. Fulton.

Mr. FULTON. Then I take it the answer that should have been given to Senator O'Mahoney was that you had not gotten the information from Germany but that you had developed it from the published patents. Is that correct?

Mr. HOWARD. There is one type of information that we wanted from Germany and would have been very glad to have, which would have saved us some money. When you try to do anything the first time, you don't do it the cheapest way. It will work, but it is not the cheapest way. We wanted to take advantage, if we could, always, of the money savings that the I. G. had accomplished in their experience with building these operations. We weren't able to do so when we asked for that information after they were at war.

Mr. FULTON. And had you asked for that information prior to that time?

Mr. HOWARD. We had never asked for it prior to that statement, as far as I know.

Mr. FULTON. So, then, the correct statement is this, that as to the only information that would have been of any use to you, you didn't ask for it until after the war and were then refused. Is that correct?

Senator CONNALLY. Mr. Chairman, I don't think that is a fair question.

Mr. HOWARD. I don't think that is correct.

Senator CONNALLY. Why don't they ask the witness for the facts and not for some conclusions and argument.

The CHAIRMAN. Well, the committee will eventually get all the facts, and we are very much interested in the fundamentals behind this whole procedure. That is the reason we are giving you an opportunity to be heard before this committee. We have no desire to convict anybody. We want the facts, and if you proceed to give us those facts as clearly and as succinctly as you can, there will be no trouble about the matter at all.

Mr. FARISH. That is what we are trying to do.

The CHAIRMAN. Proceed.

Senator MEAD. Mr. Chairman, I think the counsel was developing a very interesting point, and as one member of the committee, I would like to have it completed.

Senator CONNALLY. Mr. Chairman, I don't care how complete it is. Let the witness be asked any question you want to ask him, but let him answer in his own way, and not get into an argument with somebody as to how he ought to have answered.

The CHAIRMAN. The counsel will proceed with the questions.

Mr. FULTON. Now, with respect to that question, what is the answer to that, using your own words, as Senator Connally suggests?

Senator CONNALLY. Just leave Senator Connally out of it now, please.

Mr. HOWARD. Thank you, Mr. Fulton.

Senator CONNALLY. Senator Connally will take care of his own interests here without counsel.

Mr. HOWARD. You gentlemen of this committee have all heard Mr. Batt testify that the problem in the manufacture of synthetic rubber in the United States is to get butadiene produced cheaply and quickly. That was the only problem that we ever foresaw in connection with the development of synthetic rubber in the United States. That is the only problem upon which we ever expended our research efforts here. That is the only problem upon which we ever asked information from the I. G.

If I may, I would like to give you gentlemen a record of the information that we got—asked—from the I. G. over a period of years on that question.

Mr. FULTON. And then after you have finished that, would you answer the question that I asked you, which didn't relate to butadiene at all?

Mr. HOWARD. In a letter dated November 4, 1935, from Mr. Frolich to Mr. Howard, there was a report given on a meeting between three gentlemen of the I. G. who gave technical information on the aldol process for making butadiene from acetylene. The work done in Germany was mentioned, and also there was described the beginnings of the chlorination method of making butadiene in Germany. The I. G. further reviewed methods of making butadiene by decomposing cyclohexane. This is a process now being worked on in the United States by the Koppers Co. They also mentioned the dehydrogenation of butylene. That is the process that we have finally developed here.

By a letter dated September 13, 1937, from Mr. Slotterbeck, of Standard, to Mr. Frolich, there is summarized a discussion of September 1 with several gentlemen of the I. G. This discussion covered work done by the I. G. on the production of butadiene by the chlorination method. Important technical details on methods of operation, such as temperature, time of contact, catalyst, equipment, and yields, were reported by the I. G. representatives.

In a memorandum dated July 26, 1938, by Mr. Frolich, there is covered information obtained by Dr. Beller, an American representative of the I. G., on a recent visit to Germany. The technical information given is on the yields and on the reactor material employed in the chlorination process for making butadiene.

In a letter dated December 22, 1938, from Mr. Frolich to Mr. Murphree, there is reported a discussion with Dr. Mueller-Conradi of the I. G. This discussion covered the latest technical information on the best methods developed by the I. G. for carrying out the chlorination process of making butadiene.

I might say that the chlorination process is now in use in the United States by the Shell Co. and produces part of the commercial butadiene used here.

A number of letters are found giving analysis of  $C_4$  cut—that is our refinery gas cut—prepared at Bayway for shipment to the I. G. for their experimental use in Germany in developing a chlorination method suitable for application to our refinery gases, to produce butadiene from them. The I. G. supplied butadiene from their own production in Germany and also isoprene from their own production in Germany for Jersey's experimental work in the United States as early as July 17, 1933. The I. G. also supplied butadiene in 1938 and 1939 for operation of our experimental plant on butyl rubber at a time when we could not purchase butadiene in the United States for that purpose.

We have a memorandum dated May 3, 1938, by Dr. Rosen, of our organization, on discussions with Dr. Mueller and Mr. Beller, of the I. G., on butadiene production. The information was given on the chlorination process by Dr. Mueller. It mentions that 10 tons of secondary butyl alcohol were sent to I. G. for the preparation of butylene dichloride. It mentions that an order was placed by I. G. with us for 9,000 gallons of spent  $C_4$  cut. That is a spent byproduct gas from our own refineries. Both of these shipments were for the purpose of demonstrating the I. G.'s chlorination operation as applied to our own refinery gases. Dr. Mueller mentions that chlorine must be eliminated from the final butadiene to make it suitable for polymerization.

Mr. Howard visited Ludwigshafen, in Germany, in March 1939, and was shown the I. G. chlorination process and experimental plant for making butadiene.

In April 1939 engineers from the Standard Oil Development Co. visited Ludwigshafen for an inspection of this pilot plant.

The CHAIRMAN. Mr. Howard, to get back to butyl rubber and buna rubber, I am anxious to have Senator O'Mahoney's question answered. I don't think this technical thing answers it at all.

Mr. FULTON. First, on that you were referring to butadiene, which is one of the oil derivatives as to which Standard retained as its portion the field of activity, is that not so, Mr. Howard? I mean by that, that butadiene is one of the products as to which, in the agreement with I. G. Farben, they were to transmit all information to you, and the matters that you have just read indicated that they abided by their agreement, did they not?

Mr. HOWARD. The only obligation that they had to transmit butadiene information to us was in connection with the manufacture of buna rubber from oil. There was no independent reason for them to do that.

Mr. FULTON. Was not this product a product which would be termed an oil product under your division of fields?

Mr. HOWARD. No, sir; it is not a major product of oil under the agreements.

Mr. FULTON. And would not be so construed by you people?

Mr. HOWARD. Butadiene? No, sir; I don't believe so.

Mr. FULTON. In other words, it is not a raw material which could be termed an oil product as distinct from a chemical.

Mr. HOWARD. Oh, it is made from oil, yes, sir; but I thought you meant, Mr. Fulton, whether butadiene was an oil product under the oil agreements.

Mr. FULTON. Yes.

Mr. HOWARD. Butadiene came under our agreements with I. G. only insofar as it was regarded by the parties as a raw material for the manufacture of buna rubber. The cooperation between the parties through the years that I have mentioned was for the purpose of finding methods of developing the manufacture of butadiene from oil cheaply and of a quality suitable for the manufacture of buna rubber.

Mr. FULTON. In other words, it is a raw material. That is the point I am making. Is that correct?

Mr. HOWARD. Yes, sir.

Mr. FULTON. And not as a finished product.

Mr. HOWARD. That is right.

Mr. FULTON. Now going to the question which I asked, which related only to the buna rubber, not to the raw material, would you answer the particular question that has been asked?

Mr. HOWARD. Would you repeat the question? I am sorry. It is so long ago.

Mr. FULTON. It is a little difficult, but the nature of the question is this: as to whether it was not so that the only information that you were interested in receiving, and ever asked for, with respect to buna rubber was not refused.

Mr. HOWARD. So far as I know, we never asked for information on the polymerization process for making buna rubber until after we acquired the patents following Germany's entrance into the war. At that time the I. G. refused to give us the information. I suppose they would have refused to give us all technical information, being at war at the time.

Mr. FULTON. Then I take it the answer is "yes."

Mr. HOWARD. I am sorry, I don't know what the question is to which that answer is given, Mr. Fulton.

Mr. FULTON. The question is, Was it not true with respect to buna rubber that the only information that you were interested in asking about, and which you did ask for, was refused?

Mr. HOWARD. No, sir; that is not true. Through the years 1931 to 1939 we asked for information on the only aspect of the manufacture of buna rubber in the United States on which we were prepared to contribute anything, and the only aspect of that problem which, as Mr. Batt has testified, is a bottleneck on the production of buna rubber in the United States. The actual polymerization of the rubber is a simple operation, involving a relatively small amount of capital. It can be and is carried out by numbers of people in the United States on their own information and what they obtained from the patents. It was never a problem, and we never asked for any information on it until we wished to build a commercial plant of our own. Following the war, we could have gotten information from the rubber companies who already had commercial plants in operation at that time. Instead of that, we applied to I. G., and they said that being at war, they could give us nothing, of which I saw no criticism whatever.

Mr. FULTON. Mr. Howard, we seem to have a great deal of difficulty understanding each other. I thought you talked about butadiene and that we agreed that that was a raw material. First, didn't we do that? We will take this in very easy stages so that

there will be no difficulty of our understanding each other. First, was not butadiene a raw material?

Mr. HOWARD. Yes; butadiene is a raw material.

Mr. FULTON. Second, isn't everything you just gave me in the question, material relating to butadiene and not to the buna process?

Mr. HOWARD. No, sir. I have just referred to the buna process by saying that we could have obtained from the rubber companies here information on their commercial or semicommercial plants for making buna, but we asked the I. G. and were turned down the first time we asked, which was after they were in the war.

Senator O'MAHONEY. Mr. Chairman, would it interrupt Mr. Fulton if I intervened at this point?

Mr. FULTON. No.

The CHAIRMAN. Proceed.

Senator O'MAHONEY. Mr. Howard, or Mr. Farish, it is immaterial which of you answer, but to get the record straight, is it not a fact that there are two kinds of rubber, buna and butyl?

Mr. FARISH. There are several kinds, Senator.

Senator O'MAHONEY. Of course, there are several kinds. There is natural rubber—

Mr. FARISH (interposing). Neoprene and Thiokol and Ameripol.

Senator O'MAHONEY. All right, but let me put it this way so there will be no opportunity for a technical answer. Butyl rubber and buna rubber are different, are they not?

Mr. FARISH. Yes, sir.

Senator O'MAHONEY. Buna rubber is the I. G. formula, is it not?

Mr. FARISH. Yes, sir.

Senator O'MAHONEY. And butyl rubber is the Standard formula?

Mr. FARISH. Right.

Senator O'MAHONEY. Butyl rubber can be made very much less expensively than buna rubber; can it not?

Mr. FARISH. We think it can; yes, sir.

Senator O'MAHONEY. When you made your disclosure to the Government, were you disclosing butyl or buna?

Mr. FARISH. Both.

Senator O'MAHONEY. You were disclosing both?

Mr. FARISH. Yes.

Senator O'MAHONEY. Will you be good enough to explain what is meant by this language which was quoted by Mr. Arnold? If you have a copy of this testimony, I think it will be found on pages 11 and 15 of the original statement from which he read. This is a quotation from the language of the Standard having to do with this very disclosure. Mr. Arnold testified:<sup>1</sup>

Thus, full information was sent to I. G. Farben in 1938 but in 1939, Standard failed to disclose full information as to butyl rubber to a representative of our own Navy's Bureau of Construction and Repair. I quote:

"Some time ago we received a rather detailed report on the preliminary work carried out by the Navy's Mare Island Laboratories on the evaluation of the three synthetic rubbers submitted to them, i. e., buna-S, perbunan, and butyl rubber. Last week, Mr. Werkenthin of the Navy's Bureau of Construction and Repair in Washington spent the day with us here at Bayway to

<sup>1</sup> Supra, p. 4318 and Exhibit No. 400, appendix, p. 4630.

discuss the Mare Island Laboratories results, and to get some first-hand information on the compounding and general handling of these synthetic rubbers."

There is a report of Standard that a representative of the Navy was visiting the Standard plant at Bayway to get some first-hand information. Then proceeding:<sup>1</sup>

"Mr. Werkenthin was particularly interested in ascertaining how far we had proceeded in the development of butyl rubber. He seemed rather favorably impressed by the properties of this product as brought out by the movie and with the work in general, but perhaps he was somewhat disappointed to find that we are not closer to commercial production as he seems to be particularly impressed by the properties of butyl rubber.

"Because of the possible application of butyl rubber to some of the Navy's requirements, Mr. Werkenthin had been instructed also to look into the manufacturing process"—

This, I take it, may be the technical process, too, of which you testified a little while ago—<sup>2</sup>

"You will recall that I took up this question with you before his arrival. As agreed upon, I took Mr. Werkenthin over to the K plant when it appeared that I could not very well steer his interest away from the process. However, I am quite certain that he left with no picture of the operations other than that a considerable amount of distillation and refrigeration is involved in the handling of the light hydrocarbons, and that refinery gas rather than straight butadiene is the raw material."

Now, Mr. Farish and Mr. Howard, a lay person reading that paragraph from your files cannot avoid the inference that this official of Standard was instructed to steer the Navy representative away from the manufacturing process. Understand, this is not the language of Mr. Arnold. It is not my charge. It is language taken from the files of Standard, and I think that you will probably want to explain to the committee and to the Congress just what was meant in this language:

As agreed upon, I took Mr. Werkenthin over to the K plant when it appeared that I could not very well steer his interest away from the process.

In other words, the representative of the Navy was so interested in finding out about the process that this representative of Standard finally, against his will, felt compelled to take him to the K plant.

However—

he said, excusing the fact that he had to take him to the K plant—

I am quite certain that he left with no picture of the operations other than that a considerable amount of distillation and refrigeration is involved in the handling of the light hydrocarbons \* \* \*

Are we to infer from that, Mr. Farish, that it was the intention of Standard to obscure the matter so that the representative of the Navy Department could not get a clear picture?

Mr. FARISH. Senator, I will answer that by this statement. As I understand the circumstances, this gentleman, Mr. Werkenthin, is a civilian employee of the Navy, who came to the laboratory at the request of our people, who were working with the Navy, as is explained in the letter, in some of their operations to test this rubber. He was primarily interested in the use of the rubber. The Navy was not, as we understood it, interested in the manufacture of the rubber, and as customary in our laboratory and every laboratory that I know of, there is no ready exposition of process work and

<sup>1</sup> Exhibit No. 400, appendix p. 46 '0

<sup>2</sup> Ibid.



experimental work that is being carried on. Obviously, anybody who is in our laboratories trying to find out what is going on in experimental work is not shown what is going on, and this man was not shown the technical formulas, the tests, that were going on in our laboratory. Also, as I understand, he was not particularly interested in it.

Senator O'MAHONEY. So that it is clear, when you testify to this committee that in 1939 you were making a full disclosure, as a matter of fact, you were not.

Mr. FARISH. We were making, as I stated in my statement, a full disclosure of everything that the Government could make practical use of.

Senator O'MAHONEY. But you were the judge as to what practical use the Government could make of particular processes, manufacturing or otherwise, and it was your judgment and not the Government's judgment that controlled the disclosure.

Mr. FARISH. Senator, I take it that the Government and certainly the department that we were trying to get interested in the building of rubber plants and the manufacture of synthetic rubber, were not interested in the technical detail of manufacture.

Senator O'MAHONEY. Well, Mr. Chairman, I think that the answer of the witness makes the facts of the situation very clear. I may make this comment, however. I can understand very well why the Standard of New Jersey allowed itself to be entrapped into this position of knowingly diverting the attention of a Navy Department representative from a manufacturing process, and I assume the reason was—

Mr. FARISH (interposing). Senator, may I ask—

Senator O'MAHONEY. Yes; surely.

Mr. FARISH. I don't like to be entrapped into this position. It is a natural position for us to take.

Senator O'MAHONEY. If you prefer to be represented to the country as naturally diverting the attention of the Government from processes over which you have control, you are perfectly welcome to that position.

Mr. FARISH. We are naturally reluctant to show anybody—

Senator O'MAHONEY (interposing). Mr. Farish, what I was about to say is this—

Mr. FARISH (interposing). I have stated for the record that this gentleman was there at our request. He wasn't there on any authorization of the Government—the Navy—to seek information on our property.

Senator O'MAHONEY. He was there at your request to see what you were willing to show him.

Mr. FARISH. That is right.

Senator O'MAHONEY. And nothing else.

Mr. FARISH. As you like.<sup>1</sup>

Senator O'MAHONEY. The observation that I was about to make was that the Standard of New Jersey, like General Electric or any of these other large corporations, is primarily interested in its business. Is that not correct?

<sup>1</sup> Mr. Farish subsequently supplemented his testimony at this point as follows:

"The fact is that the visit in question had been arranged at Dr. Frolich's invitation for the purpose of acquainting Mr. Werkenthin with our laboratory work on the testing, compounding, and utilization of butyl rubber. On November 10, 1939, Commander Chadwick of

Mr. FARISH. What do you mean by "primarily interested in its business"?

Senator O'MAHONEY. Well, your thoughts are naturally—

Mr. FARISH (interposing). We are also interested in our Government, if that is what you mean.

Senator O'MAHONEY. Yes, of course, as individuals, but the policy of the company is to nurture and to stimulate the business in which you are engaged and to proceed with the policy to which you are committed, of a world-wide division of territory under a cartel arrangement with I. G.

Mr. FARISH. No, sir.

Senator O'MAHONEY. You did have such an arrangement, did you not?

Mr. FARISH. No, sir.

Senator O'MAHONEY. What was the contract of 1929?

Mr. FARISH. It was not a world-wide cartel arrangement.

Senator O'MAHONEY. Was not your arrangement with I. G. one which, briefly speaking, delegated to you, that is, to Standard of New Jersey, the world picture of oil and to I. G. the world handling of chemicals?

Mr. FARISH. Senator, if you want to go into that at this stage of the proceedings, we can go into that, but it is all covered in our statement to you.

Senator O'MAHONEY. I would say that it is covered up in your statement, Mr. Farish. [Laughter.]

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the Navy Bureau of Construction and Repair acknowledged this invitation, writing Dr. Frolich as follows:

"The Bureau acknowledges with thanks receipt of your letter of October 20, 1939, containing as enclosure a copy of a review on the "Properties of Butyl Rubber."

"In accordance with your suggestion a Bureau representative will visit your experimental plant and laboratories on Thursday, November 16, 1939.

"Information is requested if arrangements can be made whereby you and other technical men interested in the above-mentioned product may be available on that day so that a schedule mutually satisfactory may be arranged." (This letter appears in the appendix on p. 4798.)

"Pursuant to Dr. Frolich's original invitation and his earlier discussions with Mr. Werkenthin himself, Dr. Frolich understood that Mr. Werkenthin's interest in the manufacturing process in behalf of the Navy Bureau of Construction and Repair was limited to the question of the status of this process as regards prospects for commercial production. On this point Dr. Frolich endeavored to satisfy Mr. Werkenthin completely. Mr. Werkenthin's interest beyond this point was understood by Dr. Frolich to be a purely personal professional interest.

"Dr. Frolich and Dr. Hopkins obviously felt embarrassed as to how to handle this situation without showing any discourtesy to Mr. Werkenthin and their exchange of views, referred to in the letter quoted by Mr. Arnold, reflects this embarrassment, and nothing else.

"In this connection may I call the attention of the committee to the fact that there is no legislation, nor does there seem to be any uniform practice, in the Government in general, or in the Navy, controlling or limiting the disclosures or uses which employees may make of technical information coming into their possession from industry in the course of their employment by the Government. The Government itself has only the protection that it is entitled to a "shop right" under any inventions of Government employees—a very incomplete protection even on this point. Private industry has no protection whatever. The embarrassments created by this legal situation are obvious and are well understood in technical circles of the Government and industry. In wartime it is the general practice of industry to disregard these embarrassments and risks and communicate freely to Government employees all types of experimental and other confidential technical data. In time of peace it is necessary to recognize that, while the Government itself certainly does not intend to make improper use of confidential information obtained from industry, it has no adequate control over its own employees in this respect. I should like to point out that as a policy matter approved by its officers and directors, Standard, as early as January 1939 (when the whole world was at peace) had accepted any hazards that might be involved in acquainting the Army and Navy Munitions Board with its experimental work on butyl rubber—its nature, properties, compounding, testing, and possible utilization, so far as then known to us. This was nearly 4 years before any commercial production of butyl rubber, and a year and a half before any samples were available for private industry. Even when samples were given to private industry, it was only under written agreements affording a measure of patent protection against these same embarrassments, which may result from premature disclosure of experimental operation on which the patents are still pending."

Mr. FARISH. All right, sir. Well, then, let's uncover it.

The CHAIRMAN. Proceed. Let's let him proceed with the statement, and if we can uncover, we will proceed to do it.

Senator KILGORE. Mr. Chairman, I just want to ask one question at this time.

The CHAIRMAN. All right. I don't want to keep anybody from asking any questions that he wants to.

Senator KILGORE. Did I understand that Mr. Werkenthin was there at your invitation?

Mr. FARISH. So I understand, sir.

Senator KILGORE. And the idea was to interest the Navy in building a plant for the production of rubber, is that it?

Mr. FARISH. Oh, no.

Senator KILGORE. Then I misunderstood you. That is what I wanted to get straightened out.

Mr. FARISH. The idea was to see whether this rubber had such properties that the Navy was interested in using it.

Senator KILGORE. And to sell them other rubber?

Mr. FARISH. That is right.

Senator KILGORE. No idea of a Government-financed plant?

Mr. FARISH. Not with Mr. Werkenthin; no, sir.

Senator KILGORE. Well, but you were interested at that time in a Government-financed plant?

Mr. FARISH. Well, I don't think we were; no. We were trying to get somebody in Washington to be interested in synthetic rubber.

Senator KILGORE. Synthetic rubber?

Senator O'MAHONEY. Were you trying to get any of the rubber companies interested in synthetic rubber?

Mr. FARISH. Yes, sir.

Senator O'MAHONEY. Isn't it a fact that you were denying licenses to them?

Mr. FARISH. No, sir.

Senator O'MAHONEY. Holding them back?

Mr. FARISH. I don't think so.

Senator O'MAHONEY. The copy of Mr. Arnold's testimony has disappeared from my desk, otherwise I would quote it.

Mr. FARISH. Senator, if you let me go along—

Senator O'MAHONEY (interposing). I beg your pardon, certainly.

Mr. FARISH. If you make notes we can come back to them and I am perfectly willing to stay here a week and dig into anything that you are interested in on this. As a matter of fact, I welcome your interest. Not being a member of the committee, I welcome your interest to come here and help clear it up.

Senator O'MAHONEY. Mr. Farish, you and I have exchanged questions many times before and I know that that is your attitude.

The CHAIRMAN. Mr. Farish, if you will proceed with your statement, we will try to find out what is in it as we go along.

Mr. FARISH. All right, sir.

The CHAIRMAN. I want to give every Senator the courtesy of asking a question whenever he feels like it, and the counsel has a perfect right, too, if he feels like it. We will expedite the matter as much as possible, but we want to get all the facts and I think you are interested in our having all the facts, Mr. Farish. Proceed.

Mr. FARISH. We certainly are; and I don't want the idea to get out that we are trying to cover up any facts.

The CHAIRMAN. Well, we will attend to that. We will do our part if you cover up.

Mr. FARISH. I submit as an exhibit a memorandum of a meeting on January 12, 1939, which Standard had with Colonel Rogers, Colonel Hines, and Captain Heiss of the United States Army, and Commander King of the United States Navy.

(The memorandum referred to was marked "Exhibit No. 447" and is included in the appendix on p. 4725.)

Mr. FARISH. This memorandum shows that the entire story was told to these representatives of the Army and Navy Munitions Board. Five-pound samples of buna-S, buna-N, and butyl rubber (referred to in the memorandum as "X") were left with these gentlemen, together with complete information. The records of the Army and Navy Munitions Board record this meeting as well as the earlier meeting with Mr. Howard, in which Mr. Howard pointed out that butyl rubber was in the early stages of development but apparently had advantages over buna, from the standpoint of availability of raw materials and manufacturing costs. From the date of this meeting in January 1939 on through to June 1940, when a committee of the Advisory Commission to the Council of National Defense became the Government agency to consider and promote synthetic rubber, we have a voluminous record of meetings with and correspondence to and from representatives of the Army and Navy Munitions Board, the Chemical Warfare Service, and the United States Navy's Bureau of Construction and Repairs. Without wishing to burden the committee with the details of this record, I have selected from scores of communications with the Government and Government suppliers the following documents which clearly show not only that Standard's technical information—and I might add there that by technical information we mean the information of use and adaptability—about synthetic rubber.

Mr. FULTON. You mean you do not mean the information as to how to produce buna.

Mr. FARISH. To manufacture, no.

Mr. FULTON. But, as a matter of fact, this letter of October 20, 1939, shows you did not then have——<sup>1</sup>

Mr. FARISH (interposing). We did have it on butyl; yes, sir.

Mr. FULTON. On buna I am talking about.

Mr. FARISH. But on buna we did not have it.

Mr. FULTON. You did not have either a laboratory or a pilot plant operation at that time on buna?

Mr. FARISH. I don't know. I will have to check that.

Mr. FULTON. Well, perhaps this letter of Mr. Hopkins would make that clear.

Mr. FARISH. The answer is, we did not.

Mr. FULTON. And that is evidenced by the letter of Mr. Hopkins, is it not, where he says that it is not possible to determine in advance what difficulties will be encountered until the process is carried out on a laboratory and pilot plant scale. He also refers in this letter to

<sup>1</sup> See Exhibit No. 396, appendix, p. 4623.

the fact that he did not have sufficient technical men available. How many men did you have working on buna at that time?

Mr. FARISH. I will have to confer to get an answer to that, sir.

Mr. FULTON. Do you know, Mr. Howard?

Mr. HOWARD. I am sorry, sir, I don't know.

Mr. FULTON. How many men did you have on the whole process of compounding rubber, whether perbunan, buna-N, buna-S, or butyl?

Mr. HOWARD. We might get a rough idea from some of the gentlemen here. We will find out in a little while.

Mr. FULTON. Do you think it exceeded three?

The CHAIRMAN. If you will put that number in the record when you find the amount.

Mr. FARISH. We will be glad to, Senator.

Mr. FULTON. Do you think it exceeded three, Mr. Howard?

Mr. HOWARD. Oh, yes; I think it exceeded 30, probably.

Mr. FULTON. On the compounding as distinct from your butadiene or raw material that you and I seem to have so much difficulty with.

Mr. HOWARD. I will get the facts for you, Mr. Fulton.

The CHAIRMAN. Proceed, Mr. Farish.

Mr. FARISH. This began 8 months before even the European war started and nearly 3 years before Pearl Harbor.

I submit as an exhibit a letter from Colonel Hines, Secretary of Army and Navy Munitions Board, dated January 26, 1939, acknowledging receipt of samples and saying:

The Army and Navy Munitions Board appreciates the information and assistance which you have given to date as well as your offer of assistance in the matter of synthetic rubber development in the future.

(The letter referred to was marked "Exhibit No. 448" and is included in the appendix on p. 4727.)

Mr. FARISH. I submit as an exhibit Colonel Hines' letter of February 1, 1939, arranging a joint meeting with Standard and the Chemical Warfare Service and the Bureau of Construction and Repairs of the Navy. This meeting was held on February 9, 1939.

(The letter referred to was marked "Exhibit No. 449" and is included in the appendix on p. 4728.)

Mr. FARISH. A letter from Lt. Comdr. J. M. Kiernan, United States Navy, received March 13, 1939, acknowledging rubber samples together with technical information on how to use them.

(The letter referred to was marked "Exhibit No. 450" and is included in the appendix on p. 4728.)

Mr. FARISH. A letter of April 22, 1939, from Maj. M. E. Barker, Chemical Warfare Service, advising of arrangements to make up gas masks from butyl rubber.

(The letter referred to was marked "Exhibit No. 451" and is included in the appendix on p. 4729.)

Mr. FARISH. This cooperative program on butyl rubber with the Chemical Warfare Service has been continuous and is still being actively pursued. It has been expanded to include the new Chemical Warfare Service Research Laboratory at the Massachusetts Institute of Technology.

The cooperative work with the Navy led to the formulation of a specific butyl rubber program submitted by the Navy Department's

Bureau of Construction and Repairs on November 29, 1939, which is offered as an exhibit.

(The letter referred to was marked "Exhibit No. 452" and is included in the appendix on p. 4729.)

Mr. FARISH. The program outlined in this exhibit was followed by butyl rubber work conducted in Standard's own laboratories, by the Navy Yard at Mare Island, and by the Brooklyn Navy Yard. I am giving you as exhibits, a sample of butyl rubber insulated wire prepared under this program and also a sample of butyl rubber deck matting. Matting prepared under this cooperative program is at the present time being tested out in actual service on two Navy ships.

(The two samples referred to were marked "Exhibits Nos. 453 and 454" and are on file with the committee.)

Mr. FARISH. Can anyone doubt that Standard has cooperated fully and effectively with the United States Army and Navy in its butyl rubber program? We have considered it our duty to keep secret our contacts with the Army and Navy and I am not now giving you details which should not be disclosed. This is my judgment.

Mr. FULTON. Now, Mr. Farish, taking your exhibits: Your exhibit 1, page 2, the first paragraph thereof indicates that technical questions were not discussed with those gentlemen referred to by you as having been shown the entire story,<sup>1</sup> does it not?

Mr. FARISH. I stated, sir, that by technical information, I did not mean information as to manufacture.

Mr. FULTON. But when you referred to that memorandum in your statement you said of it, and I am quoting, "This memorandum shows that the entire story was told to these representatives of the Army and Navy Munitions Board." And by that you mean the entire story, less any discussions of technical questions which, of course, they weren't competent to discuss anyhow.

Mr. FARISH. I think that is correct, sir.

Mr. FULTON. And the memorandum so indicates.<sup>2</sup>

Mr. FARISH. That is the way I understood it.

Mr. FULTON. Now, they did indicate an interest in the copolymer which is your butyl product, on page 2, the third paragraph?

Mr. FARISH. I don't have it before me. The copolymer there means butyl rubber?

Mr. FULTON. It does. That was my understanding of what you meant by copolymer.

Mr. FARISH. Yes, sir.

Mr. FULTON. That would mean then that in indicating an interest in that and in sending Mr. Werkenthin to you they were trying to ascertain further facts on butyl rubber, were they not?

Mr. FARISH. I don't think, Mr. Fulton, that Mr. Werkenthin's visit had anything to do with the program we had on with the Board.

Mr. FULTON. Your position on that program being that you were simply delivering to them samples which they could test to see whether they could use them in say, this wiring or this mat?

Mr. FARISH. To interest them in the use of rubber.

<sup>1</sup> Supra, p. 4393 and Exhibit No. 447, appendix, p. 4725, at p. 4726.

<sup>2</sup> Ibid.

Mr. FULTON. And not in any way to interest them in the technical aspects of how to produce the rubber?

Mr. FARISH. No, sir; I don't think they were interested in that.

Mr. FULTON. Now, with respect to the buna-S rubber, does not your own exhibit, which you have just introduced, indicate that the Navy was interested in obtaining the technical information?<sup>1</sup> Will you read the third paragraph of it, if you are not familiar with it?

Mr. FARISH. You want me to read it aloud?

Mr. FULTON. If you wish, but does it not indicate that the Navy was asking you for technical information about the compounding formula?

Mr. FARISH. As long as you mentioned it, I would like to read it into the record, please:<sup>2</sup>

Since the amount of information available on type "S" rubber is very limited, compounding formulae will have to be developed on a trial and error basis. It is hoped that the paper to be presented by Dr. Albert Koch of the I. G. Farben Industrie, at the meeting of the Rubber Division of the American Chemical Society on April 4, 1939, will shed some light on the processing qualities of this material. If, in the meantime, you should obtain any information in regard to the compounding and processing of type "S" rubber, the Bureau will appreciate obtaining such information. It is noted that you have been able to effect a reduction in the amount of accelerator required for vulcanization.

That is a letter from Lieutenant Commander Kiernan, on this subject that we are just discussing.

Mr. FULTON. Asking for technical information.

Senator HERRING. Let him explain it.

Mr. FARISH. Let me carry on if you please, sir, and the gentleman referred to is Dr. Albert Koch, who is the technical compounding expert that we got the I. G. Farben to send to America with samples of this buna-S rubber, taken to all the major tire companies to help them with his experience and knowledge in this very question of compounding that we speak of.

Mr. FULTON. What is compounding?

Mr. FARISH. And Lieutenant Commander Kiernan is simply asking us here that if we gather any additional information to let him have it.

Mr. FULTON. Now, what is compounding?

Mr. FARISH. Compounding is taking the raw rubber and working it up into tires and other rubber products in a rubber factory.

Mr. FULTON. And that would be in effect processing of the material as distinct from manufacturing?

Mr. FARISH. Right; that is the processing of the material.

Mr. FULTON. Now, beyond that did they indicate any interest in the manufacturing?

Mr. FARISH. Beyond what he is stating here?

Mr. FULTON. Processing is one thing. You have to manufacture before you process. Did the Navy indicate an interest in the manufacture?

Mr. FARISH. Not how it was made—not that I know of.

Mr. FULTON. You didn't yourself have information on that; at least, you didn't have it 7 months later when this Hopkins letter was written.<sup>3</sup>

<sup>1</sup> See Exhibit No. 450, appendix, p. 4728.

<sup>2</sup> Ibid.

<sup>3</sup> See Exhibit No. 396, appendix, p. 4623.

Mr. FARISH. We didn't get it from the I. G. Farben, if that is what you are driving at.

Mr. FULTON. And you hadn't yourself had any experiments in it?

Mr. FARISH. At that time I think we had none.

Mr. FULTON. And the rubber companies had?

Mr. FARISH. I understood that Goodrich and Firestone and others were compounding butadiene and styrene, polymerizing butadiene and styrene and making rubber from it; yes, sir.

Mr. FULTON. So that then the fact is that the rubber companies knew more about buna rubber than the Standard Oil, is that true?

Mr. FARISH. They knew more about compounding.

Mr. FULTON. About manufacturing?

Mr. FARISH. About manufacturing the raw material?

Mr. FULTON. And so far as we today have information on that, it is information which the rubber companies themselves have developed independently of Standard Oil on buna rubber?

Mr. FARISH. No, sir; it has gone along concurrently. If you read the record of the private hearings, Mr. Fulton, when the president of Goodrich, the president of Goodyear were here and testified and where we testified,<sup>1</sup> they testified that they went ahead regularly with their own development and were not handicapped or delayed by not working with us.<sup>2</sup> We went ahead with our own development and we built a plant, a commercial plant at Baton Rouge with our own money that has been making buna rubber since—what is the date?

Mr. HOWARD. Since early 1941.

Mr. FARISH. Since early 1941.

Mr. FULTON. But the question that I asked—

Mr. FARISH (interposing). And I stated a while ago the first run through that plant produced commercial rubber.

Mr. FULTON. But the question I asked was whether Standard Oil had worked up this buna before the rubber companies and then had worked with them afterward?

Mr. FARISH. Well, apparently the rubber companies were making a rubber product from the polymerization of butadiene and styrene before we had.

Mr. FULTON. Before you even started a laboratory experiment?

Mr. FARISH. Before we had worked it up; yes.

Senator O'MAHONEY. May I ask a question on that? Mr. Farish, in the light of your answers to Mr. Fulton, I want to read to you an extract from a letter written by Dr. Hopkins, quoted by Mr. Arnold.

Mr. FARISH. What was the date of the letter?

Senator O'MAHONEY. January 10, 1940, addressed to the Goodrich Co.<sup>3</sup>

The draft of agreement which I left with you was intended to permit you to manufacture synthetic rubber for specialty purposes, and leave you free to participate in a common manufacturing company or not as you may wish when and if such a company can be organized.

<sup>1</sup> Executive session hearings. The testimony of Standard Oil officials, heard on March 23, 1942, was subsequently ordered printed by the committee as Exhibit No. 481 and appears in the appendix on pp. 4761-4776.

<sup>2</sup> In connection with the independent studies on synthetic rubber conducted by both Goodrich and Goodyear, see statements prepared by these companies for the committee which appear in the appendix on pp. 4933 and 4938.

<sup>3</sup> See Exhibit No. 385, appendix, p. 4608.



Now, here is the interesting sentence.

Quite frankly, it was our intention that the license would not be a suitable one under which to operate if the licensee expected to go beyond producing a relatively high-cost specialty product.

Do you desire to make any explanation of that?

Mr. FARISH. I will cover that when I can get to it.

Senator O'MAHONEY. Thank you. Then may I suggest another item for you to cover when you get to it?

Mr. FARISH. All right, sir.

Senator O'MAHONEY. This question that I am going to suggest now has a more or less—I will withdraw the phrase "more or less"—it has a very intimate significance to me as a Senator from Wyoming, because Wyoming is one of the largest oil-producing States. There is a great deal of production from the public domain in the State of Wyoming and a very large number of the leases on the public domain are held by large oil companies, like Standard of Indiana, and of Texas, the Continental, all of which are known as the big oil companies. The city of Casper is in the very center of the oil region and for years an effort has been made by the people of Casper and the people of the State to bring about the development of synthetic rubber. We knew way back there yonder in 1938 out in Wyoming that it probably would be splendid insurance to develop synthetic rubber. And so, when the Chamber of Commerce of Casper—

Mr. FARISH. May I ask, Senator, insurance against what?

Senator O'MAHONEY. Insurance against the situation that now exists. So when, the chamber of commerce appealed to me to help in getting some sort of plant to make synthetic rubber, I wrote back to them and I said, "the very best avenue for your effort will be through the Standard of Indiana. The Standard of Indiana has a thorough, modern plant here in Casper, and there is a great deal of crude oil. If petroleum can be made the source of synthetic rubber, you have the material, you have the company, and probably you ought to have the 'know how', because," I said, "Mr. Farish told me as long ago as 1937, that it was possible to make synthetic rubber from petroleum." You may remember that conversation.

Mr. FARISH. Yes; I do.

Senator O'MAHONEY. So, I find a great deal of interest in a memorandum dated January 6, 1942—that is this year and just a couple of months ago—which indicated that Standard of New Jersey was not willing to cooperate with Standard of Indiana to make possible the development of the natural resources of the State of Wyoming for the manufacture of synthetic rubber. Let me read the memorandum.

Mr. FARISH. Senator, I have covered that fully in this statement.

Senator O'MAHONEY. I want to be sure that—

Mr. FARISH (interposing). I don't think it has any reference to Wyoming, but it does have a reference to our work with the Standard of Indiana.

Senator O'MAHONEY. Let me read your memorandum.

This is the last paragraph of the memorandum as produced by Mr. Arnold:<sup>1</sup>

I told Mr. Plummer that it was my understanding that it would be a violation of some of our agreements for us to release such information to Indiana—

it would be interesting to know what agreements the memorandum referred to—

and suggested that in case he did not wish to send a sample of his material to us for testing that he might submit it to Firestone, U. S., or Acushnet. Mr. Plummer stated that he preferred not to give any samples to anyone at this time, and asked whether we would be willing to send him a pound or two of butyl rubber.

Mr. FARISH. May I interrupt just a moment? Would you mind repeating what Mr. Plummer said?

Senator O'MAHONEY. Mr. Plummer, I understand, is Standard of Indiana.

Mr. FARISH. That is right; but I didn't quite get it. Will you please repeat it?

Senator O'MAHONEY (reading):<sup>2</sup>

Mr. Plummer stated that he preferred not to give any samples to anyone at this time, and asked whether he would be willing to send him a pound or two of butyl rubber.

Let me say parenthetically that I understand the Standard of Indiana is not unwilling to prevent anybody else from engaging in business.

I told him I was sure we would be willing to do so, and if you agree that this procedure is in order, will you please send him some?

Then on January 13, 1942, I find this letter, taken from the Standard files by the Department of Justice:<sup>3</sup>

I have phoned Mr. Plummer and have told him that our contract obligations—what contract obligations?<sup>4</sup>—

applied to samples of butyl as well as to information. Further, that although we were no longer obligated not to give samples to others—

observe the word "obligated"—

we have made a uniform policy of not doing so—

even though the obligation has been eliminated—

and hence, would prefer not to give one to him at the present time. Mr. Plummer stated that this would not inconvenience them appreciably since they had made arrangements to have their product tested by Naugatuck anyway, and Indiana really did not need a sample of butyl.

When you get to it, Mr. Farish, I would like to have your comment on that phase of the situation, which apparently was an obstacle by Standard of Indiana and Standard of New Jersey to the development of synthetic rubber in the State of Wyoming, where apparently all the elements were available.

Mr. FARISH. Senator, I will cover that fully. I will get to it in due time.

<sup>1</sup> See Exhibit No. 402, appendix, p. 4632.

<sup>2</sup> Ibid.

<sup>3</sup> Exhibit No. 403, appendix, p. 4633.

<sup>4</sup> In this connection see footnote 1, *infra*, p. 4403.

Senator CONNALLY. Did the oil in Wyoming have some particular qualities over other oil that made it necessary?

Senator O'MAHONEY. Well, it is almost as good as Texas oil, Tom.

Senator CONNALLY. The Senator's whole argument is that something ought to have been done in Wyoming. I just wondered if they had any different oil from other States; if it had more rubber in it.

Senator O'MAHONEY. No; Senator Connally, that is not my whole argument. My whole argument is that the cartel system, which is followed by these large companies, inevitably restricts local developments.

Senator CONNALLY. We are here to get evidence, not an argument from the Senator from Wyoming. I am trying to get the evidence from the witness.

Senator O'MAHONEY. That is what I am trying to get.

Senator CONNALLY. I don't think so. You are taking up all the time making a speech.

Senator O'MAHONEY. I could take up much more time and almost as much time as the Senator from Texas does.

The CHAIRMAN. The committee is not the floor of the Senate. As chairman of this committee, I try to extend every courtesy to every Senator who comes here. I feel that the Senators have a perfect right to ask any questions they want to, because information is what we are after, but if the Senators want to have an argument, I want to ask them to have that personal argument on the floor of the Senate where they can be brought to order by the President of the Senate.

Now, I hope that the Senators will stick strictly to the matter in hand, and I appreciate Senator O'Mahoney's being here and I appreciate the questions he has been asking, but I would like very much to have Mr. Farish proceed with his statement.

Senator MEAD. In that connection, Mr. Farish, in view of the fact that it is approaching 12 o'clock, I wish you would tell me, because I have to leave, where that Plummer matter is that you say you are going to reach in the statement.

Mr. FARISH. The Plummer matter, Senator, I understand is not in this written statement, but the reference to it is, and I will be glad to explain it.

Senator MEAD. Then you won't reach it in this statement.

Mr. FARISH. I will reach it in my statement to the committee, sir.

Senator MEAD. It will be sort of an aside.

The CHAIRMAN. We will expect you to make that statement as you told the Senator you would.<sup>1</sup>

Mr. FARISH. Yes, Senator; I will be glad to do it. I will point out, Senator Mead, in view of your criticism, that we have had a very

<sup>1</sup> Mr. Farish subsequently submitted the following statement:

"The contract obligations referred to in Senator O'Mahoney's questions were the letter contracts with the American companies who were working on butyl rubber in cooperation with us. [Sample of such letter contract appears in appendix on p. 4800.]

"As the correspondence shows Standard Oil Co. (Indiana) was asking for a sample of our experimental product, butyl rubber, for comparison with a new experimental product of their own, and at the same time serving notice on us that they would not give us a sample of their product. Under the circumstances there was no reason for us to depart from our general rule that we would limit distribution of butyl samples to companies with whom we had made cooperative arrangements, until such time as we had a supply sufficient for general distribution."

short time to cover all of the subjects raised in this, and we have been working night and day to try to do it, and there is no desire—

The CHAIRMAN (interposing). Mr. Farish, I think I gave you fair warning, along with the rest of the people who were to appear, when you appeared before the committee at the private hearings, that you could be expected to meet this situation.

Mr. FARISH. I am not complaining. I am only explaining. There are so many issues brought up in connection with this thing that to prepare a written statement for all of them and have it ready has been almost a physical impossibility.

The CHAIRMAN. Very well, we will give you a chance to make a clean record on it if you can, and that is what you are here for. Will you proceed with your statement?

Mr. FARISH. At this point you may well ask why the butyl development did not become commercial at an earlier date, but as in the case of all of our major new developments, it has proved more difficult than we imagined to progress from laboratory to actual commercial production even up to the present.

All our information about butyl rubber has been obtained from laboratory pilot units of maximum capacity of half a ton per week. It was not until March 1941 that the engineers were ready to say they could design a commercial unit which would operate satisfactorily. From this time forward our progress was rapid. The first appropriation of \$2,500,000 requested—and I might stop to say there, this was not an appropriation of Congress; this was an appropriation of our board, our money, and not congressional or taxpayers' money.

The CHAIRMAN. I am glad to have you make that statement.

Mr. FARISH. Was made on June 11, 1941—

The CHAIRMAN (interposing). The taxpayers, of course paid it in the long run, but it is your funds that you have yourself, taken from the taxpayers in profits.

Mr. FARISH. Possibly, or that they put up in the form of capital; that the stockholders have put up in the form of capital.

The CHAIRMAN. That is right.

Mr. FARISH (continuing). And this original program was increased by a second appropriation of \$2,000,000 on October 27, 1941, so that at the time of Pearl Harbor we had under construction 7,300 tons per annum of butyl rubber capacity, with an estimated investment cost of \$4,500,000.

That plant is not yet in operation. We have been delayed in its completion by lack of material priorities.

The CHAIRMAN. You are going to expand it to a larger capacity, are you?

Mr. FARISH. Under the present program, Senator, of the Rubber Reserve, that particular plant will be expanded to 40,000 tons instead of 7,300.

Let us turn from butyl to buna. I reported to your subcommittee on March 23, Standard's experimental work with the early German production of buna. An American rubber company found this unsuitable for tires in 1934.

Mr. FULTON. Is that buna-S or buna-N?

Mr. FARISH. I think at that time it was buna-N, Mr. Fulton.

Mr. FULTON. Is it the same kind of buna we are talking about today?

Mr. FARISH. Well, I think we have been talking about buna-N and buna-S backward and forward. At this stage I don't believe even the Germans knew the distinction between them.

Mr. FULTON. But was that buna rubber you are talking about when you say it was found unsuitable for tires, a buna rubber of the type that anyone was talking about producing today?

Mr. FARISH. It was fundamentally the same, yes. It was made from the same raw materials, but I dare say the technique of production has been greatly improved to where it is really a different rubber.

Mr. FULTON. Are you sure it was made from the same raw material?

Mr. FARISH. I think so.

Mr. FULTON. Do you think so, Mr. Howard?

Mr. HOWARD. My recollection is that that was an early buna-N rubber, and that it was the same type that the Goodyear Co. were making under the Chemigum, and which they believed was a good tire rubber.

Mr. FULTON. But not the same type of rubber we are discussing today?

Mr. HOWARD. It is one of the two types that are under discussion today.

Mr. FULTON. Didn't it contain a considerable amount of sodium which has been eliminated since?

Mr. HOWARD. Do you mean as an impurity, Mr. Fulton? I don't know.

The CHAIRMAN. Proceed, Mr. Farish.

Mr. FARISH. An American rubber company found this unsuitable for tires in 1934. I reported also that during the entire year 1937 the I. G. development of the rubber had proceeded to the point where they felt further experimentation was warranted and many samples were sent to numerous American rubber companies small ones and large ones; samples ranging from 50 pounds to 1,000 pounds. These samples were what is known now as buna-N (perbunan), the specialty rubber, and buna-S, the tire rubber. Early in December 1938, at our insistence, Dr. ter Meer, head of I. G.'s synthetic rubber development, came to the United States and arranged with five leading rubber companies for an experimental program for manufacturing tires with synthetic rubber; later (early in 1939) sending large samples of buna-S rubber—which they made from coal—and an expert, Dr. Koch, to help in the experimentation. A summary of the results of the tests was submitted to the Army and Navy Munitions Board on November 9, 1939. I submit a photostatic copy of the letter and the report as an exhibit.

(The document referred to was marked "Exhibit No. 455" and is included in the appendix on p. 4730.)

Mr. FARISH. When the European war broke out in 1939 and Standard took over control of the buna patents in the United States, it informed the War and Navy Departments and offered its cooperation in speeding up the production of synthetic rubber. This was on October 19, 1939, at a meeting with the Army and Navy Munitions Board.

Mr. FULTON. Had you taken over control at that time?

Mr. FARISH. We had control of the patents; yes, sir.

Mr. FULTON. Then will you explain this cable that Mr. Arnold introduced,<sup>1</sup> where you state that "We have assumed the obligation to discuss with the du Pont Co. the entire situation before deciding on our policy here, and these discussions will take place very soon"? That was November 6, 1939, nearly a month later.

Mr. FARISH. Explain what was meant by that, do you mean?

Mr. FULTON. Yes; in view of your statement that you had control, why was it necessary for you to assume an obligation with I. G.?

Mr. FARISH. The obligation with the I. G. was the request of the I. G. that before proceeding with the development of it, that we consult with du Pont.

Mr. FULTON. And you regarded it as a request rather than an obligation?

Mr. FARISH. That is my understanding. I would rather Mr. Howard explain that to you as he was present when the discussions were had and he knows more intimately than I do.

Mr. FULTON. Was that your cable, Mr. Howard?

Mr. HOWARD. Yes; I believe it was.

Mr. FULTON. Why did you use the term "obligation" if you meant "request"?

Mr. HOWARD. Because when we received the assignments of the buna patents from the I. G., they told us that they had at one time some years before had discussions with the du Pont Co.; that the I. G. believed that du Pont's neoprene rubber was better than their own buna rubber, and they were negotiating, apparently, for a license for themselves in Germany under du Pont's neoprene rubber.

Mr. FULTON. Neoprene is better for certain very limited purposes.

Mr. HOWARD. There is no doubt it is better for many purposes. Apparently, in connection with those negotiations with the du Pont Co. many years before, they had told the du Pont Co. that before they decided upon what plan they would use, they being in control of buna then, to exploit it in the United States, they would consult with the du Pont Co. They told me of this and said, "That is an obligation you must carry out. You must ask the du Pont Co. what their ideas in this matter are before you proceed, because we have assumed that obligation."

I asked the du Pont Co. Our ideas did not coincide with theirs, and we had no more contact with them.

Mr. FULTON. But the I. G. did tell you it was an obligation they had that you must assume?

Mr. HOWARD. Yes, sir; we assumed that obligation. But the obligation, Mr. Fulton, was not an obligation to do anything; merely to let the du Pont Co. express their views, which we did.

The CHAIRMAN. Proceed, Mr. Farish.

Mr. FARISH. Next, in November 1939, Standard conferred with the five leading tire companies. We were trying to find the best way to create a buna synthetic rubber development in the United States. These contacts resulted in our offering to license all five of these companies to produce buna rubber. We all understood that buna-N, the specialty product, was the only product that had commercial possibilities at that time. The rubber companies advised us that it would

<sup>1</sup> See Exhibit No. 413, appendix, p. 4640.

be impossible to support any production of buna-S, the tire rubber, without considerable Government subsidy and support.

Mr. FULTON. That was simply a question of obtaining raw materials, particularly styrene, was it not?

Mr. FARISH. No; that was a question of cost, Mr. Fulton, as I understand it.

Mr. FULTON. But the cost in this way: As to buna-N, you could produce that if you produced it at a very high selling price.

Mr. FARISH. That is right.

Mr. FULTON. Because that selling price would enable you to buy material which existed on the market in sufficient quantities for a limited production. In other words, you wouldn't have to increase the plant capacity of raw materials if you adopted buna-N.

Mr. FARISH. Well, the cost of making buna-N was higher than the cost of making buna-S, but buna-N was worth more than buna-S and commanded a higher price.

Mr. FULTON. At least it did have a price at that time of almost a dollar a pound.

Mr. FARISH. It was selling for a dollar a pound.

Mr. FULTON. At a dollar a pound, the quantities that could be used would be limited to specialty uses.

Mr. FARISH. Correct.

Mr. FULTON. And there would be sufficient raw materials so that you wouldn't have to expand the plant capacity; isn't that correct?

Mr. FARISH. That is probably correct, too.

Mr. FULTON. Whereas with the buna-S it would have been a cheaper rubber, more suitable for tires, but you couldn't have made it without expanding plant capacity, particularly for styrene, and, to some extent, butadiene.

Mr. FARISH. That is correct, but I don't know that it would be more suitable for tires. The other product is just as suitable, perhaps better for tires, but it is more costly.

Mr. FULTON. And when you say it was impossible——

Mr. FARISH (interposing). When I say better for tires, I am told that some of it is better for tires. Mr. Howard says that is not generally true, but I have been told that neoprene, for instance, is a better tire rubber than buna-S today.

Mr. FULTON. There are certain difficulties in the process, I understood, which made it difficult. You would have to have new machinery, I believe.

Mr. FARISH. I believe that is correct.

Mr. FULTON. But with respect to buna-S, when you say everybody said it was impossible to support production, you mean simply in order to have major production you would have had to increase the capacity for raw materials.

Mr. FARISH. I mean that, and it would cost, as nearly as anybody could estimate it, somewhere around 30 cents a pound, and synthetic rubber to make tires at 30 cents a pound couldn't live long against raw rubber at an average price of 12 or 14 cents a pound.

Mr. FULTON. Well, was that really the price that you people estimated you could make that rubber at?

Mr. FARISH. Buna-S?

Mr. FULTON. Yes.

Mr. FARISH. I think that was about the price, yes, sir; the cost, rather.

Mr. FULTON. You mean in a very small plant?

Mr. FARISH. No; I think that is about the cost figure that is being used today in these Government projects.

Mr. FULTON. Did you think so, Mr. Howard?

Mr. HOWARD. I think we made cost estimates on buna-S rubber all the way from a bottom which I believe is 18, to a top of around 34 or 35, and that depends upon various assumptions as to the factors that go into it.

Mr. FULTON. I show you particularly a memorandum from your files which purports to have been sent to you, and ask you to look at that and tell me whether that was not prepared by Standard as its estimate of the cost in 1940, in June? <sup>1</sup>

Mr. FARISH. As to what?

Mr. FULTON. All three types—buna-S, buna-N, and butyl.

Do you recognize that document, Mr. Howard?

Mr. HOWARD. I am just trying to refresh my recollection on it, sir. This seems to be a cost estimate on buna-S and on butyl. I don't see any reference to buna-N here. Did I overlook it, Mr. Fulton?

Mr. FULTON. Maybe I have another sheet on buna-N, but taking buna-S, which is what we were talking about, and of which Mr. Farish said it was 30 cents and you said you had a low estimate of 18, will you look at that and tell me what the Standard Oil estimate in June of 1940 was on a 300-ton plant?

Mr. HOWARD. The estimate on a 300-ton plant without capital charges is 16 cents. I believe capital charges would be at least 4 cents, and probably more than that, Mr. Fulton. The investments required were enormous.

Mr. FULTON. The investment was \$49,000,000, I believe.

Mr. HOWARD. Yes, sir. If you figure it out and apply a reasonable rate of depreciation on it, I am sure the figure will come up by 4 or 5 cents.

Mr. FULTON. So at the time you were taking the position that it was impossible to manufacture buna-S commercially, you thought it would cost you about 20 cents a pound, is that correct?

Mr. HOWARD. Yes; at least that, and I believe the 20-cent figure or a 22-cent figure has been mentioned by Mr. Jones as one of the optimistic estimates that he has received on the manufacture.

Mr. FULTON. This was not an optimist who was preparing this memorandum, was it; it was an official estimate for your company.

Mr. HOWARD. Apparently we were in the optimistic class in estimating on cost.

Mr. FULTON. But not in the optimistic class in attempting to build such a plant, were you, because that is below the price of rubber today. It was below the price being currently paid in '41, was it not, even with your capital cost?

Mr. HOWARD. Mr. Fulton, the price of rubber in '41 was scandalous. The natural rubber produced certainly didn't cost more than 5 cents on the average, and it was being sold in the United States at 21 and 22 cents, for no reason except that the producers of it could get 22 cents. To have built a plant to manufacture rubber in the United

<sup>1</sup> See Exhibit No. 392, appendix, p. 4618.



States at a cost of 20 cents when the foreign rubber would cost 5 cents, would have been folly.

Mr. FULTON. That is very interesting. Do you mean that the price of rubber, that is the cost of producing rubber which the English-Dutch rubber group in the Malay and eastern regions were sending here, was only 5 cents a pound?

Mr. HOWARD. Mr. Litchfield, the president of the Goodyear Tire & Rubber Co., testified at a private hearing<sup>1</sup> that in his opinion, the native plantations would continue to produce rubber down to about  $2\frac{3}{4}$  or 3 cents a pound; that the company plantations could certainly produce it well under 10 cents a pound, with all their charges. I believe that is the testimony; that is the substance of it.

Mr. FULTON. I wondered if that coincided with your own information.

Mr. HOWARD. Yes, sir; and that has been our problem in rubber throughout.

The CHAIRMAN. And the only reason they could get those outrageous prices was because they were in the same position in which you were trying to get and had complete control of the natural rubber and could set the price at any figure they wanted to; isn't that true?

Mr. HOWARD. Senator, unfortunately or fortunately, as you like, we have never been in the position of having a monopoly on synthetic rubber, and, of course, the committee knows that very well.

The CHAIRMAN. That is the condition you were trying to bring about with your agreements with I. G. Farben.

Mr. HOWARD. No, sir; that is not so.

Mr. FULTON. In developing this, one of the reasons why you might legitimately have hesitated to make such a large capital expenditure was not that you couldn't produce buna rubber or that you couldn't produce it at a price around the price that was being obtained, but you feared if you did, the natural rubber would come in below you and you would lose your investment.

Mr. HOWARD. We were quite certain it would.

Mr. FULTON. And you felt that way because you believed you had worth-while information that the cost of production was only about 5 cents?

Mr. HOWARD. The actual market price of rubber in the United States, plus freights, has been down to something very near 3 cents, according to Mr. Litchfield's testimony.

Mr. FULTON. It was at one time.

Mr. HOWARD. And it has been under 5 cents here in the United States for periods, according to that testimony.

Mr. FULTON. And up as high as \$1.

Mr. HOWARD. Up as high as \$1.25; yes, sir.

Mr. FULTON. And that is a very major thing from your standpoint or the standpoint of anyone who wanted to develop synthetic rubber?

Mr. HOWARD. That is a major problem in connection with any possible development of a synthetic-rubber industry in this country. Some means must be found to meet that hazard or there can be no synthetic-rubber industry here.

<sup>1</sup> Executive session hearings.

Mr. FARISH. Our technical people think today that the best data will show that the cost of making this buna-S rubber is between 25 and 30 cents a pound.

Mr. FULTON. And then as to butyl rubber, I believe that cost was in the neighborhood of 7 cents or under, according to those estimates; was it not?

Mr. HOWARD. That cost, also without capital charges, as I read it, was estimated at  $6\frac{1}{2}$  to  $7\frac{1}{2}$  cents per pound, and the capital charges would bring it up by 4 cents, perhaps.

Mr. FULTON. On the capital charges, I note it is only half as much as the capital expenditures for buna-S—less than half.

Mr. HOWARD. I will be glad to figure those capital charges for you later.

Mr. FULTON. Isn't it \$23,800,000 that you estimated it would cost for a 300-ton-per-day plant to produce butyl?

Mr. HOWARD. Twenty-three million eight hundred thousand for a 100-ton-per-day plant.

Mr. FULTON. Is that 100-ton or 300-ton?

Mr. HOWARD. No; I am sorry, that is 300 tons.

Mr. FULTON. That is about half what the plant expenditure would be for this buna-S that the Government is going to build plants for, isn't it?

Mr. HOWARD. I told you we were, perhaps, optimistic in this estimate. Mr. Farish has just testified that the first plant we built for this, with a capacity of 7,300 tons per annum, which is 60 tons per day, had a cost of \$4,500,000.

Mr. FULTON. And when you multiplied that by 5, you found you were pessimists rather than optimists, didn't you, because 5 times 4,500,000 is less than 23,800,000, I believe.

Mr. HOWARD. That was 20 tons a day, not 60.

Mr. FULTON. That makes the difference. The smaller the plant, the higher the cost per ton of capacity; is not that true?

Mr. HOWARD. We have used those same figures in expanding the plant to the present capacity of 40,000 tons per annum, which is 120 tons per day.

Mr. FULTON. In other words, there is no saving?

Mr. HOWARD. Not as yet. We hope to make it further, but we have used those same estimates so far.

Mr. FULTON. With respect to that 6.6-cent figure, that comes pretty close to this 5-cent figure that you just quoted us, if you add the freight and other things from the Malayan area, doesn't it?

Mr. HOWARD. The 6.6 cents haven't any capital charge in it, Mr. Fulton.

Mr. FULTON. And you would add how much for capital charge?

Mr. HOWARD. I would add, on a \$23,800,000 investment, for interest, depreciation, obsolescence on this thing, at least 15 percent. That would be one-seventh of that amount.

Mr. FULTON. That would bring it up to between 8 and 9 cents.

Mr. HOWARD. Have you made the computation for me?

Mr. FULTON. I think 9 is high, don't you, if you add 15 percent? Fifteen percent would really be less than 8 in this figure, wouldn't it?

Mr. HOWARD. I don't want to take the time of the committee to make the computation at this time. I will be glad to afterward.

Mr. FULTON. Anyway, it is 15 percent added to the 6.6 cents.

Mr. HOWARD. No; not 15 percent of 6.6 cents; 15 percent of \$23,-800,000 applied to that tonnage of rubber to get the cents per pound.

Mr. FULTON. Divided by the number of pounds.

Mr. HOWARD. Yes, sir.

Senator O'MAHONEY. Mr. Chairman, I felt the question you asked a little while ago was not answered, so I wanted to direct attention to it again. Mr. Howard stated what I believe to be the fact, namely, that the producers of raw rubber were selling in the United States at a price vastly in excess of the cost of production. I think that has been the history of natural rubber in the United States market. Agreements were made during the Hoover administration between the British Government and the Dutch Government by which a very excessive price was charged for rubber in the United States. But the chairman's question was whether the Standard and I. G. were not endeavoring to get into exactly the same position with respect to synthetic rubber, and in that connection I wanted to call attention to the language which Mr. Farish has just used.<sup>1</sup>

Early in December 1938, at our insistence, Dr. ter Meer, head of I. G.'s synthetic rubber development, came to the United States and arranged with five leading rubber companies for an experimental program for manufacturing tires with synthetic rubber.

My question is whether or not, in effect, an indication of the purpose of Standard and I. G., through their combination, to control through a new company in the United States the whole synthetic rubber field by the handling of the licenses.

Mr. FARISH. Do you want me to answer that, Senator?

Senator O'MAHONEY. Please.

Mr. FARISH. I don't think that indicates any purpose of control. It indicates a purpose to get the synthetic rubber program going in the United States as quickly as possible.

Senator O'MAHONEY. Then here was the memorandum of November 18, 1940.<sup>2</sup> In your testimony you have referred to Mr. Howard's memorandum of November 17, 1940. I am reading from the memorandum of the next day. It is a memorandum by Mr. Howard and I think was directed to the Humble Co. It says:<sup>2</sup>

Any synthetic rubber products manufactured by Humble for general sale should be sold not in competition with, but in coordination with, sales by other Jasco licensees.

That language of Mr. Howard means, does it not, that Standard would not permit Humble to enter the field on a competitive basis, but only under the price control which Standard, through its subsidiary, was asserting.

Mr. FARISH. That is the effort of a patent owner, to control his goods.

Senator O'MAHONEY. Yes; I understand that; but that was the effort.

Mr. FARISH. Certainly, Senator.

Senator O'MAHONEY. Through this patent, the intention of Standard was to bring five rubber companies into a new organization and

<sup>1</sup> Supra, p. 4405.

<sup>2</sup> See Exhibit No. 411, appendix, p. 4638, at p. 4639.

the manufacture of synthetic rubber would be controlled and the prices would be set by that combination.

Mr. FARISH. I imagine the price of the rubber they produced would be set by that group; yes.

Senator O'MAHONEY. In other words, it is the old story of a combination to fix the prices, making an affirmative answer to the chairman's question.

Mr. FARISH. Of the goods that group produces.

Senator O'MAHONEY. That is right, surely.

Mr. FARISH. But as I pointed out, and as the record shows, there are other people producing synthetic rubber.

The CHAIRMAN. Mr. Farish, it is perfectly apparent that we can't get through, and most of the Senators have had to leave. I am going to recess the committee until 10:30 tomorrow, and we will try to go through the day, if that is satisfactory, and finish with you tomorrow, and I have asked Mr. Jones to come Friday instead of tomorrow.

(Whereupon, at 12:15 p. m., the committee recessed until 10:30 a. m., Thursday, April 2, 1942.)

# INVESTIGATION OF NATIONAL DEFENSE PROGRAM

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THURSDAY, APRIL 2, 1942

UNITED STATES SENATE,  
SPECIAL COMMITTEE TO INVESTIGATE  
THE NATIONAL DEFENSE PROGRAM,  
*Washington, D. C.*

The committee met at 10:37 a. m., pursuant to adjournment on Wednesday, April 1, 1942, in room 318, Senate Office Building, Senator Harry S. Truman presiding.

Present: Senators Harry S. Truman (chairman), Harley M. Kilgore, Joseph H. Ball, James M. Mead, and Clyde L. Herring.

Also present: Senator Joseph C. O'Mahoney, Wyoming; Mr. Hugh A. Fulton, chief counsel; and Mr. Charles P. Clark, associate chief counsel.

**TESTIMONY OF W. S. FARISH, PRESIDENT, STANDARD OIL CO. (NEW JERSEY), NEW YORK CITY, AND FRANK A. HOWARD, VICE PRESIDENT, STANDARD OIL CO. (NEW JERSEY), PRESIDENT, STANDARD OIL DEVELOPMENT CO., NEW YORK CITY—Resumed**

The CHAIRMAN. The committee will come to order. Mr. Farish you were proceeding with your statement on page 15.

Mr. FARISH. Fifteen.

The CHAIRMAN. Fifteen? You will proceed, please.

Mr. FARISH. Shall I take up the statement right where we stopped and not go back any?

The CHAIRMAN. Yes; that is on page—

Mr. FARISH (interposing). Fifteen.

The CHAIRMAN. Well, it was page 4 of the second—the supplement, down at the bottom of the page there.

Mr. FARISH. Standard then sought the advice of the Army and Navy Munitions Board about buna for tires. I offer as an exhibit Mr. Howard's three-page memorandum of November 17, 1939, from which I quote.

(The memorandum referred to was marked "Exhibit No. 456" and is included in the appendix on p. 4731.)

Mr. FARISH (reading):

The Munitions Board were asked to indicate whether, in their opinion, in view of the above proposals, the interests of the Government would be better served by asking the five companies to join in a single plant to produce buna-N commercially and small quantities of buna-S experimentally or whether it would be equally effective if we licensed several manufacturers. In their preliminary consideration of the matter the gentlemen of the Board had no definite convictions on this question.

I submit as an exhibit a copy of report made by Maj. James C. Brown to the Munitions Board of a meeting on November 16, 1939, with Standard Oil Development Co., from which I quote.

(The report referred to was marked "Exhibit No. 457" and is included in the appendix on p. 4734.)

Mr. FARISH (reading):

This request was made with the view to seeking a proper approach to the problem from a rubber-substitute angle, and commitment was desired whether or not the Government was interested in assisting financially. In the event the Government could find no way to assist, the proposition of issuing licenses could and still may be developed. Regardless of the outcome of this proposal for governmental aid, the Standard Oil Development Co. would, nevertheless, want to consider the interests of national defense.

Also from the same document:

*Conclusions.*—(3) That the Standard Oil Development Co. suggests that it will go ahead with its plans to issue licenses whether or not Government aid is forthcoming. However, it desires to be advised whether the War Department desires individual or collective development and experimental work with buna-S by the companies licensed to use buna-N.

To this Colonel Hines, United States Army, Secretary, Army and Navy Munitions Board, replied in a letter dated November 16, 1939, which I offer as an exhibit.

(The letter referred to was marked "Exhibit No. 458" and is included in the appendix on p. 4735.)

Mr. FARISH (reading):

It is believed that the greatest good could be accomplished by a concerted effort rather than by individual undertakings.

Referring again to the last exhibit, I wish to quote another statement from Major Browne's memorandum which emphasizes a basic problem which confronted Standard in its attempts to carry forward a rubber program. He wrote (reading from Exhibit No. 457):

This company cannot afford to develop buna-S on a large scale since there is little or no commercial market. Buna-S is believed to be the best-known rubber substitute for tire manufacture. The price of natural rubber in normal times deters extensive development of this substitute. On the other hand, there is a commercial market for buna-N (similar to neoprene, thiokol, butyl X, and other high-priced synthetics which have special uses)—particularly in the oil resistance field. \* \* \* No company wants to pioneer the development of buna-S on such a large scale that would be necessary to make the United States self-sufficient in respect to rubber—peacetime competition with natural rubber prevents, and the resultant financial burden is too much.

Senator BALL. Mr. Farish, I was wondering about that statement of Major Browne that buna-S is believed to be the best-known rubber substitute for tire manufacture. It may have been the best known, but don't you people feel now that butyl X is probably the best bet?

Mr. FARISH. No, sir; we do not, sir.

Senator BALL. You don't? Isn't butyl as good for tires as buna-S?

Mr. FARISH. No, sir; not the advice we get from the rubber companies.

Senator BALL. It isn't?

Mr. FARISH. No, sir.

Mr. FULTON. Is that due to a defect in the butyl or due to a deficiency in the experimentation with it due to the late start?

Mr. FARISH. I couldn't answer that, Mr. Fulton.

Mr. FULTON. When you answered Senator Ball, what did you mean that it was not?

Mr. FARISH. That is the advice we get from the rubber companies.

Mr. FULTON. And what was the advice?

Mr. FARISH. The advice is that the butyl so far has not made what they would call a tire as good as the natural rubber or the buna-S rubber.

Mr. FULTON. You mean quantitatively or qualitatively?

Mr. FARISH. Qualitatively.

Mr. FULTON. The reason I asked is this: That the butyl is so much cheaper and uses a raw material which is, as I understand it, not only cheaper but more plentiful; that unless the buna-S tire is distinctly better, it would still be better to use the butyl even though the tire wouldn't last quite as long.

Mr. FARISH. I might agree with you on that, but you asked me if it was a better tire.

Mr. FULTON. I thought Senator Ball asked you whether the butyl might be a better bet for tires. Wasn't that the question?

Senator BALL. That is what I meant. Don't you regard it now as the best rubber substitute we are working on, it has the most possibilities?

Mr. FARISH. I will try to answer that. I can answer that best by giving you the latest information that we have which I got only a few days ago from the U. S. Rubber Co. who, it has been agreed upon, was carrying on the major experiments with this rubber at this time, and they felt that a tire could be made out of butyl rubber that was perhaps 50 percent as good as normal tires, that is, natural rubber tires, provided it was not run at a speed of over 40 miles per hour.

Mr. FULTON. And what did they report with respect to buna-S?

Mr. FARISH. Well, I didn't have a report of that recently, but I understand that buna-S will make a tire that approximates the natural rubber tire in service.

Mr. FULTON. Approximates or is 80 percent—

Mr. FARISH (interposing). Approximates is what I would say.

The CHAIRMAN. Is that practically the same rubber that the Goodrich Rubber Co. has been experimenting with on their tires that they have put out?

Mr. FARISH. I would think so, Senator, because it is made from the same raw material. I don't know the Goodrich process of compounding, but it is made from butadiene and styrene.

The CHAIRMAN. That is right.

Mr. FARISH. Which is the same as this.

Mr. FULTON. But considering the difference in cost of the two rubbers, if it would do half as well—if butyl would do half as well as buna-S, it would still be a saving on tires, would it not?

Mr. FARISH. A saving for tires?

Mr. FULTON. It would still be better tire rubber.

Mr. FARISH. I don't think so as yet, Mr. Fulton, because of the limitation on speed. It isn't what we would call a heavy-duty tire. For instance, as I understand it, in the so-called Army and Navy defense work, I don't think butyl would fill the bill.

Mr. FULTON. Well, then, disregarding Army and Navy defense and discussing the civilian rubber problem, it would be a cheaper tire

per mile if you stayed under 40 miles an hour than buna-S, isn't that correct on the basis of what you just told us?

Mr. FARISH. I couldn't answer that. I don't know. I am giving you all the information I have which comes from the U. S. Rubber Co.

Mr. FULTON. But from the figures introduced yesterday, if they are correct, and they are the Standard Oil's estimates, it would be a better tire per mile at 40 miles an hour and under in the sense of cost.

Mr. FARISH. Than a tire using 25 percent rubber uses.

Mr. FULTON. Yes.

Mr. FARISH. That might well be. I haven't tried to make a calculation. Let me state it this way: It is my opinion, and I have stated it publicly, that the best way to keep the civilian automobiles running is through the making of butyl tires that will run 35 or 40 miles an hour satisfactorily.

Mr. FULTON. Then, I take it, the answer to Senator Ball was that you do believe butyl is desirable for tire purposes?

Mr. FARISH. That is correct, certainly. But let me state further that butyl is not in commercial production as yet.

Mr. FULTON. We know that.

Mr. FARISH. We are still dealing with laboratory samples of butyl.

The CHAIRMAN. Were those figures which we discussed at some length yesterday furnished to Mr. Jones in the Government, those cost figures on the manufacture of this synthetic?

Mr. FARISH. No, Senator, we are on those figures now, and I would like Mr. Howard to explain how those figures were made up. As I understand it, our files were opened to investigation, everything in the company, memoranda and everything else; and I have no doubt that there have been numerous estimates of cost made on these rubbers over the years, and this happens to be one—a preliminary estimate, which I think, frankly, is optimistic because I don't believe we can approach these figures in cost today. But I would rather Mr. Howard explained it as he is more fully informed.

The CHAIRMAN. I was just anxious to know whether those figures had been furnished to the Government in the lay-outs that we are now trying to set up to get this synthetic rubber.

Mr. FULTON. Or also whether they were furnished in June 1940 when they were the only figures you had.

Mr. FARISH. The only figures we had?

Mr. FULTON. I assume they were, were they not, Mr. Howard?

Mr. HOWARD. No; I am sure that we had many estimates over that period. This particular estimate, as the cover letter shows, was only a preliminary estimate, which so far as I know, the higher officials of the company never saw. It was asked for by telephone by the research director and prepared in 3 hours for his purposes. The figures shown in this estimate as of June 1940 turned out to be, as to capital cost, almost exactly one-half the figures that we used a year later in making our own appropriation for our own plant. The figures are almost exactly one-half the same figures Mr. Jones is now using in his own estimates of the cost of his program.

The CHAIRMAN. He made those estimates himself without reference to any figures you may have furnished him?

Mr. HOWARD. Yes, sir; that is correct, sir.



The CHAIRMAN. That is what I wanted to know.

Mr. HOWARD. Thank you.

The CHAIRMAN. Proceed, Mr. Farish.

Mr. FARISH. Standard then outlined the principles of a plan under which the buna program could be carried forward by a company which would be owned by Standard and all American rubber companies wishing to participate. The principle of this plan had to be abandoned because it was questionable under the antitrust laws. Therefore, when we found that three rubber companies were interested in producing perbunan—that is a specialty rubber—the high cost, oil-resisting specialty rubber, we offered licenses to permit these rubber companies to get into quick production of perbunan for specialty uses, but required that each licensee should agree to use his plant to manufacture tires from buna-S in case they were requested to do so by the United States Government.

Senator BALL. Mr. Farish, who determined that this plant for a joint development program was questionable under the antitrust laws?

Mr. FARISH. Our attorneys.

Senator BALL. Did you take it up with the Justice Department?

Mr. FARISH. No, sir; not that I know of. The answer is no.

We all understood that buna-N, the specialty rubber, was the only product that had commercial possibilities at that time, the rubber companies advising us that it would be impossible to support any production of buna-S, the tire rubber, without considerable Government subsidy.

Mr. FULTON. The reason for that, I believe we developed yesterday, was the lack of the styrene and butadiene rather than the trouble with buna-S, was it not?

Mr. FARISH. I don't think, Mr. Fulton, it was a lack, it was the cost.

Mr. FULTON. Well, buna-N would have cost you more money per pound than buna-S?

Mr. FARISH. Right.

Mr. FULTON. Yet you were proposing to make buna-N?

Mr. FARISH. That is right.

Mr. FULTON. Because you had a market there which could be kept around a dollar a pound—\$.70 to \$1 a pound.

Mr. FARISH. It had a natural value for certain uses around a dollar a pound.

Mr. FULTON. Which had nothing to do with tires.

Mr. FARISH. That is correct.

Mr. FULTON. Oil resisting or other uses of that kind.

Mr. FARISH. That is correct.

Mr. FULTON. But buna-S could have been made cheaper than buna-N, couldn't it?

Mr. FARISH. Yes.

Mr. FULTON. But in order to take that they would have had to work on an expansion of the butadiene and styrene-making facilities?

Mr. FARISH. If it was made in quantities.

Mr. FULTON. And that expansion would not have been a rubber company expansion, but an oil company expansion, would it not?

Mr. FARISH. It would have been an expansion of plant facilities to make butadiene, and the building of plant facilities to make styrene.

Mr. FULTON. So that the reason for making it impossible for them was not due to the rubber companies but due to the limited capacity of the oil companies in those fields, was it not?

Mr. FARISH. Well, of course, if we were going to make quantities of it, plants had to be constructed to build butadiene and styrene.

Mr. FULTON. What investment proportion would they have required as compared to the buna factory itself?

Mr. FARISH. You mean to the polymerization of the products?

Mr. FULTON. Yes.

Mr. FARISH. The ratio? I don't recall. I couldn't give it accurately, but it is much more expensive to produce butadiene and styrene than it is to polymerize it into rubber.

Mr. FULTON. And the plant construction cost would have been more expensive too, would it not?

Mr. FARISH. Yes.

Senator KILGORE. Mr. Farish, at this point I want to ask a question I brought up yesterday.<sup>1</sup> Yesterday I asked you, shortly before you closed the testimony, with reference to the visit of a Navy representative to your Bayway plant, of which considerable was written with reference to steering him away from the process. I asked you the question at that time if you hadn't stated to Senator O'Mahoney earlier in the hearing that he was there at your invitation because you desired to interest the Navy Department, or some other department, in the building of a rubber plant. You stated that was not the purpose, you were trying to interest him in the purchase of rubber. I want to call your attention to the testimony and ask if this isn't a correct quotation made in answer to Senator O'Mahoney's question:<sup>2</sup>

I take it that the Government and certainly the departments that we were trying to get interested in the building of rubber plants and the manufacture of synthetic rubber were not interested in the technical detail of manufacture.

Wasn't that your answer to Senator O'Mahoney's question?

Mr. FARISH. It probably was, sir.

Senator KILGORE. Well, now, would you please explain to me, if you were trying to get a department of the Government interested in the building of a plant, expending of money, why you felt that that department had no interest whatsoever in the technical detail as to whether or not it would work?

Mr. FARISH. Well, we first had to get them interested, Senator, in the material that we could produce from it. The Navy Department, as I understand, at that time and since, was not interested in the manufacturing side of the question.

Senator KILGORE. But you were interested in trying to get them to build some plants.

Mr. FARISH. We were interested in getting anybody we could get in the Government to daddy or finance or back this synthetic-rubber development.<sup>3</sup>

<sup>1</sup> Supra, p. 4395.

<sup>2</sup> Supra, p. 4393.

<sup>3</sup> In this connection Mr. Farish later stated further: "But Mr. Werkenthin's visit was not the result of, or a part of, any consideration by the Government of the manufacture of synthetic rubber. As of this date, November 1939, no agency of the Government had any plan, policy, or legal authority or funds to engage in the manufacture of synthetic rubber."

Senator KILGORE. Now, I want to go back to the close of yesterday and the beginning of today's testimony on that. You stated at the close of yesterday that in November 1939, you conferred with five leading tire companies as the best way to create a buna synthetic rubber development in the United States.<sup>1</sup> That is correct, isn't it?

Mr. FARISH. Yes, sir.

Senator KILGORE. Now, in the testimony of Mr. Arnold before this committee, he cites a letter to Goodrich Co. on January 10, 1940, which was just about a month and a half afterward, or less than a month and a half, and quotes these words from Standard:<sup>2</sup>

The draft of agreement which he left with you was intended to permit you to manufacture synthetic rubber for specialty purposes. We agreed to participate in a common manufacturing company or not, as you may wish, when and if such company can be organized. Quite frankly, it was our intention that the license would not be a suitable one under which to operate if the licensee expected to go beyond producing a relatively high cost specialty product.

Now, I would just like to ask you how you make that fit in with that statement of the development of buna synthetic rubber. You were just after, at that time, developing a high cost specialty rubber only, in 1939 and 1940 with these rubber companies?

Mr. FARISH. I just read, a minute ago, that is the only one that we couldn't interest anybody in, even our own people, in building commercially, Senator, and in that license we provide, as I read just a moment ago, if I may repeat it:<sup>3</sup>

I submit as an exhibit a copy of report made by Maj. James C. Browne to the Munitions Board of a meeting on November 16, 1939, with Standard Oil Development Co., to permit the rubber companies to get into quick production of perbunan—that is a specialty rubber, for specialty uses—but required (we required in that license) that each licensee should agree to use his plant to manufacture tires from buna-S in case they were requested to do so by the United States Government.

Senator KILGORE. You mean by that that they would also make buna-S in the same plant?

Mr. FARISH. The polymerization plant; yes. What I mean by that is this: Without Government help or Government tariff or subsidy, commercially the only production of rubber that could be justified was the specialty rubber. It had a sales price of around \$1 a pound, and in licensing the production of specialty rubber we required in the license that when requested by the United States Government they would use that plant to manufacture tires from buna-S.

Senator KILGORE. However, this was merely a polymerization plant. As I recollect your testimony yesterday, you said that was comparatively simple; that the hard thing to develop was the butadiene plant and the styrene plant, that they were the ones that took the time to develop, which was the raw material from which you made the various kinds of rubber. Isn't that a fact, Mr. Farish?

Mr. FARISH. Raw material from which to make buna-S?

Senator KILGORE. That was the real need of development at the time rather than polymerization plants.

Mr. FARISH. Well, the polymerization plant was needed, but it took much less period of time to build it.

<sup>1</sup> Supra, p. 4406.

<sup>2</sup> See Exhibit No. 385, appendix, p. 4098.

<sup>3</sup> Supra, p. 4414.

Senator KILGORE. Yes; in other words at that time had there been developing styrene and butadiene plants, the polymerization program could have quickly caught up with it at any time.

Mr. FARISH. That is correct, but this license was to cover what we knew of the production of these materials, too.<sup>1</sup>

Senator KILGORE. Well, I still can't make it fit with the last sentence:<sup>2</sup>

Quite frankly, it was our intention that the license would not be a suitable one under which to operate if the licensee expected to go beyond producing relatively high cost specialty product.

Mr. FARISH. That is correct.

Senator KILGORE. If you were trying to build up the buna, why was it your intention not to let them go beyond the high-cost product as expressed in that letter?

Mr. FARISH. Well, the idea, Senator, I have tried to explain, was because we felt that a joint development would be more productive.

Mr. FULTON. In other words, you were trying to force them to agree to a joint development and not leave them free to do whichever they pleased.

Mr. FARISH. Well, I don't know that we were forcing them or not, but that was the license condition; yes.<sup>3</sup>

Mr. FULTON. The license condition was one which intentionally was made such that unless they joined the joint development they were not to be permitted to go beyond producing a relatively high cost specialty product. Is that correct?

Mr. FARISH. I think that interpretation can be taken from it.

Senator KILGORE. But on February 1, 1940, your Dr. Hopkins wrote a letter citing the important items of the licensing agreement [reading]:<sup>4</sup>

1. The rubber company takes a license to produce for consumption in its own products but not for sale otherwise. It gives us an option to buy one-fourth of its plant capacity for distribution to the trade generally.

2. A high royalty rate (7.5 cents per pound) is fixed so as to make the operation practical for the rubber company only so long as the product is used as a relatively high cost specialty.

3. The rubber company agrees to license back to us its improvements.

<sup>1</sup> Mr. Farish subsequently advised the committee as follows:

"My answer to Senator Kilgore's question was an inadvertent misstatement. Actually, neither the then form of buna license nor any which have been entered into since, including the pooling agreement with the Government and the four rubber companies, have covered the production of the raw materials. There are no broad patents on this raw-material production, and the companies conducting the polymerization (rubber manufacture) are not engaged in raw-material production. When the Government undertook to deal with raw material production patents it organized three separate patent pools, one including the chemical industry and the oil industry for butadiene production; one including the oil industry only for butadiene production; and one including both chemical and oil companies for styrene production. The rubber companies are not members of any of these raw-material pools, or interested in the raw-material manufacture, except that the Goodrich Co., through its contract with Phillips Petroleum, is indirectly interested."

<sup>2</sup> See Exhibit No. 285, appendix, p. 4608.

<sup>3</sup> At a later date Mr. Farish submitted the following additional information: "I submit as an exhibit (see appendix, p. 4799) the B. F. Goodrich Co.'s letter of January 11, 1940, which was in reply to Dr. Hopkins' letter of January 10, 1940, from which Mr. Arnold quoted, and call attention to the following on this point:

"We have been, and we hope that we will continue to be, the largest users of perbunan in the United States. Our studies indicate that a plant of 6,000 pounds per day capacity is as small a plant as we should consider. This plant could easily be expanded to 9,000 pounds per day if the material could be used or sold.

"In our first discussion we indicated our interest in perbunan on a basis of 'make, use, and sell.' On buna-S our viewpoint was quite different for we see no reason to undertake commercial production on a basis of less than 200,000 pounds per day. A plant the size of the proposed perbunan plant could only be considered as a pilot plant for the manufacture of buna-S."

<sup>4</sup> See Exhibit No. 382, appendix, p. 4602, at p. 4604.

And at that time the patent attorney for the company made, among other statements, this:<sup>1</sup>

All manufacturing patent license of licensees will help to build up licensors' dominating position, but no licensee will get the benefit of any other licensees' manufacturing patent rights. In other words, this is not a cross-licensing agreement, but one in which patents are piled on patents in the hands of one centralizing company.

What I am trying to do is understand this. I wish you could explain that to me so that I could make it coincide with this testimony this morning that you are really trying to develop this for the Government and help the Government out.

MR. FARISH. You launch right into the middle of this whole patent question.

THE CHAIRMAN. Well, you can take up the discussion of the patent question now if you so desire. Senator O'Mahoney from Wyoming is here.

MR. FARISH. I think that is all right, Senator.

THE CHAIRMAN. Proceed.

MR. FARISH. As Mr. Howard is more familiar with it than I am, I am going to let him take over.

THE CHAIRMAN. That is perfectly satisfactory to the committee. Proceed, Mr. Howard.

MR. HOWARD. First, referring to the point last raised, as the owner of the dominating patents in that field—

Senator O'MAHONEY. (interposing). Mr. Chairman, may I interrupt the witness at this point? Inasmuch as Mr. Farish has delegated to you, Mr. Howard, the task of presenting this patent question, may I ask you as a preliminary to state for the record your particular function in the company and the reasons why you have been in closest touch with the patent situation, what you have been doing, and what your authority has been?

MR. HOWARD. I have been in charge of research development and patent matters for the company for many years, Senator.

Senator O'MAHONEY. How many years?

MR. HOWARD. I should think about 22 years, although I have had various senior executives over me during that period.

Senator O'MAHONEY. Have you had any authority over policy?

MR. HOWARD. All questions of policy were uniformly settled by the board of directors of the company.

Senator O'MAHONEY. How frequently were matters of this kind discussed with the board of directors?

MR. HOWARD. Constantly, Senator.

THE CHAIRMAN. Proceed. Mr. Farish, one question I would like to ask before we get started is why this information was not briefed for us in the form of a statement to go along with the principal statement, which Mr. Farish stated yesterday did contain the information.

MR. FARISH. Why it was not briefed for you?

THE CHAIRMAN. Yes.

MR. FARISH. I can't answer, Senator. We had a patent statement in here that we didn't think was fully explanatory, and in the revised statement it was not left in.

THE CHAIRMAN. Proceed.

<sup>1</sup> Exhibit No. 383, appendix, p. 4605.

Mr. FARISH. That was for the purpose of presenting the story orderly, and we are perfectly willing to discuss the patent situation in any way that you like.

The CHAIRMAN. Proceed, Mr. Farish.

Senator O'MAHONEY. Mr. Howard, are you an attorney?

Mr. HOWARD. I practiced patent law in Chicago for 5 years, Senator O'Mahoney.

Senator O'MAHONEY. I see. Where did you get your training?

Mr. HOWARD. In Washington.

Senator O'MAHONEY. Are you a native of this country?

Mr. HOWARD. Yes, sir; I am a native of Illinois, sir.

The interest of the Standard Oil Co. of New Jersey in patents is primarily to benefit its own operations. The licensing of patents has been only a secondary consideration. Like all patent owners who are in industry, our first thought in taking out a patent, or in buying a patent from others, is to develop the art to which that patent relates by actually going into the business covered by the patent. That policy, which is, I believe, the general policy in industry with reference to patents, is modified by us in the event we have patents relating to what we would call basic commodities. In all such patents our uniform policy has been to offer licenses on reasonable terms. Sometimes we have situations in which the patent covers both a basic product and a specialty product.

Senator O'MAHONEY. Are these licenses which you offer limited or unlimited licenses, and what are their terms?

Mr. HOWARD. In general our licenses have been unlimited licenses and the terms have been straight royalties.

Senator O'MAHONEY. Then do I understand that in general when you issue a license it is to the licensee to do whatever it pleases with the patented processes?

Mr. HOWARD. So far as we have the right to do so, Senator; yes, sir.

Senator O'MAHONEY. Then what is the explanation of the quotation that Senator Kilgore cited to you just a moment ago? You were offering to the Goodrich or Goodyear Co.—I have forgotten which—a license only for specialty rubber.

Mr. HOWARD. I think the committee knows now that the synthetic rubber problem had two aspects. First, it had the aspect of a limited-volume specialty business. In that business there had been many companies engaged for several years before the time we speak. The du Pont Co. had been developing a product called neoprene. No one else made or sold that product. It was their patent and they had monopolized in a natural way their own development. The Goodrich Co. had developed a product called koroseal, which they alone manufactured and sold. The Dow Co., a very leading chemical company, had developed a product called thiokol, which they alone manufactured and sold. It was in this field of specialty rubbers in which the uniform practice of industry was for the owner of the patents to be the sole manufacturer and seller of the product that we wished to engage.

We recognized that the buna patents had, however, another significance. That other significance was their possible value as a defense adjunct for the United States. We recognized that from the beginning, and as soon as we acquired the patents we therefore took up

the question with the Army and Navy Munitions Board, pointing out that situation and asking their advice on how to handle that problem. Their advice to us was that of all the roads that were discussed, the thing that seemed best to them was to try to create in the United States some joint facility, as they called it, for the manufacture of the buna-S rubber, which could not be supported commercially and required some sort of subsidy or Government help.

Mr. FULTON. They suggested that to you?

Mr. HOWARD. We offered all possible roads that we could think of to them and asked for their suggestions as to the best of those roads.

Mr. FULTON. But they suggested that device to you, did they?

Mr. HOWARD. They picked that road as the best road to go.

Mr. FULTON. Out of several suggested by you?

Mr. HOWARD. Out of several suggested by us.

Mr. FULTON. Did you advance any arguments in favor of that one or did you simply present it and leave it to them to determine?

Mr. HOWARD. I presented it so far as I know without argument. Mr. Fulton.

Senator O'MAHONEY. In these licenses, was any attempt made to control the resale price?

Mr. HOWARD. Never at any time, Senator.

Senator O'MAHONEY. Do you recall the quotation that was presented to this committee by Mr. Arnold from your memorandum dated November 18, 1940, which read as follows? Well, first let me summarize by saying I understood this memorandum to be a refusal on the part of the Standard through you to permit the Humble Oil & Refining Co. to obtain a license, except one that would provide—and this now is your quotation<sup>1</sup>—

any synthetic rubber products manufactured by Humble for general sale should be sold not in competition with, but in coordination with, the sales by other Jasco licensees.

Mr. HOWARD. Senator, the relation of the Humble Co. to the Standard Oil Development Co., my company, was a very peculiar one. Under a contract going back about 10 years, we had acted as the research and development agency for the Humble Co.; that is to say, they thought it was more economical for them to entrust to our organization the main responsibility for conducting research and development work.

We had similar contracts with other companies affiliated with the Standard Oil Co. of New Jersey, and we secured the patent rights of those companies under those contracts and agreed to give them licenses under the patent rights. It was a sort of internal cross-licensing arrangement between the companies who were supporting the common research effort of the Standard Oil Co. of New Jersey affiliates.

Senator O'MAHONEY. Doesn't this statement of yours, and I take it you acknowledge the statement—

Mr. HOWARD. Yes, sir.

Senator O'MAHONEY. Does that statement not amount to a declaration upon the part of the Standard that Humble should not engage in competitive enterprise with other licensees?

<sup>1</sup> See Exhibit No. 411, appendix, p. 4638, at p. 4639.

Mr. HOWARD. The other licensees in question, Senator, were not outside licensees; they were other licensees who would have the same relationship to Standard Oil Development Co. which Humble had, and that is as joint supporters of the effort in question, from which these products result. The Humble situation was not a normal situation, Senator.

Senator O'MAHONEY. Then do I understand that the only licensees under these patents were internal licensees, that is to say, members of your own organization?

Mr. HOWARD. No, sir; we have just referred to the fact—

Senator O'MAHONEY (interposing). That is what I thought.

Mr. HOWARD. That as soon as we obtained control of the patents we offered the patents to outside companies.

Senator O'MAHONEY. Then are we to understand that licensees would be permitted to compete with others but not among themselves?

Mr. HOWARD. No, sir; that is not correct, Senator. We never at any time expected to prevent the licensees from competing except in the specialty field. In the specialty field our purpose, which we assume to be a normal purpose for a patent owner, was to put ourselves in competition with the owners of specialty rubber processes, my company and others, to compete with them in the open market permitting the licensees to manufacture for their own consumption but not for resale.

Senator O'MAHONEY. Now, I may be a little bit slow on the pick-up here, but your sentence was "any synthetic rubber products," not specialty products, but any, and in this memorandum of yours you said that the license would provide that "any synthetic rubber products manufactured by Humble for general sale should be sold not in competition with, but in coordination with, the sales by other Jasco licensees." Now, in view of what you have said, I am trying to determine whether this statement is correct, namely, that there could be no competition by Humble with any Jasco licensee, or whether it was the intention only to prevent competition among the so-called internal licensees. Your explanation to the committee was that this was a rather peculiar condition, it wasn't normal, and I took from that that you meant that this was a limited prohibition, not a general prohibition, as the language would indicate. Now, which was it, a general or a limited prohibition?

Mr. HOWARD. The Humble memorandum was intended to apply only to the peculiar situation which existed between Humble and Standard Oil Development Co., arising out of the fact that Standard Oil Development Co. acted as a research and development agency for Humble and for various other companies affiliated with Standard Oil Co. of New Jersey. It was not intended to refer to any policy of general application by Standard Oil Co. of New Jersey, and the best evidence of that I can give, Senator, is that we licensed immediately for general use in the synthetic-rubber patents except in the specialty field. The first restrictions put in the first license were characterized by us at the time as only a stop-gap, permitting us to develop the plan recommended to us by the Army and Navy Board itself to try to find some method of getting a joint facility to carry out the development of buna-S rubber.



I should like to quote to you gentlemen a letter of August 1 to Mr. Litchfield, president of the Goodyear Co.

The CHAIRMAN. That is August 1, 1940?

Mr. HOWARD. August 1, 1940, Senator.

Mr. FULTON. From whom?

Mr. HOWARD. From me to Mr. Litchfield. [Reading from Exhibit No. 459:]

If, on the other hand, the Government program requires that Goodyear, to protect its own interests, would have to proceed with an independent large-scale synthetic-rubber project for tires, we would have to make a license agreement covering both the tire field and the specialty field directly with Goodyear. This we are entirely willing to do, and we have no desire to place any limitations at all on the sale by Goodyear to others of buna-type rubber for use in tires.

(The letter referred to was marked "Exhibit No. 459" and is included in the appendix on p. 4736.)

Mr. FULTON. Does that letter state the terms of that license?

Mr. HOWARD. In the following sentence the terms are referred to as follows [reading from Exhibit No. 459]:

We are prepared to take care of the royalty problem on buna rubber for use in tires by a straight percentage royalty, and we believe the same solution can be found for Goodyear's own consumption of buna rubber for specialty purposes. In this case it would be our own selling price, since Goodyear does not sell to others for specialty purposes, which would be the basis of the royalty.

Mr. FULTON. And what was the amount of that percentage?

Mr. HOWARD. The amount of that royalty was definitely fixed in a letter to Mr. Dinsmore, vice president of the Goodyear Co., a few weeks later.

Mr. FULTON. Dated when?

Mr. HOWARD. A letter to Mr. Dinsmore of September 10, 1940, contains the following paragraph [reading from Exhibit No. 460]:

I also informed Dr. Sebrell and Mr. O'Brien—  
they were the negotiators for Goodyear—

that after further consideration of the royalty basis we had definitely decided that there should be a sliding scale beginning at 5 percent for the first 100,000 tons manufactured under your license and under all similar licenses, and 4 percent for the second 100,000 tons and 3 percent for all excess production.

(The letter referred to was marked "Exhibit No. 460" and is included in the appendix on p. 4737.)

Mr. FULTON. Then you mean by that that within 9 months after this letter of January 10<sup>1</sup> you were prepared to discuss and did discuss a general license. Now, that 3 percent was 3 percent of the cost or of the selling price?

Mr. HOWARD. That is 3 percent of the selling price.

Mr. FULTON. And that relates to tire rubber as well as specialty?

Mr. HOWARD. No; on specialty rubber the rate was left at 7 percent.

Mr. FULTON. Seven percent on specialty?

Mr. HOWARD. On specialty rubber, and 3 percent on tire rubber.

Mr. FULTON. And it got down to 3 percent at what tonnage, did you say?

Mr. HOWARD. At 200,000 tons total production; not annual production, but total production—cumulative.

<sup>1</sup> Exhibit No. 385, appendix, p. 4608.

Mr. FULTON. Two hundred thousand. That is 400,000,000 pounds. At what amount would you commute your royalty on that basis?

Mr. HOWARD. Twenty-five cents a pound.

Mr. FULTON. What price did you have in mind?

Mr. HOWARD. Twenty-five to thirty cents a pound.

Mr. FULTON. That is \$3,000,000 annually for the license, then. I take it.

Mr. HOWARD. No, sir; this was not annually. This was total production, cumulative.

Senator HERRING. How much it would be annually would depend on how much production there was.

Mr. FULTON. It couldn't get lower than that.

Mr. HOWARD. It would be \$3,000,000 before the 3 percent would apply.

Mr. FULTON. Yes. It would be more than \$3,000,000, but the rate for 200,000 tons capacity being about one-third of our use of rubber annually in this country, would have been \$3,000,000 under that license agreement; would it not?

Mr. HOWARD. Would you like me to make these computations now, Mr. Fulton?

Mr. FULTON. It is very simple. Two hundred thousand tons is \$4,000,000; is it not?

Mr. HOWARD. Yes, sir.

Mr. FULTON. And at 25 cents, that would be \$100,000,000, one-fourth of \$4,000,000.

Mr. HOWARD. And twenty-five one-hundredths of a cent—that would be \$1,000,000; 3 percent would be \$3,000,000.

Mr. FULTON. Yes; so that if we should get our synthetic production up to one-third of the total, it would have a royalty of \$3,000,000. What I had in mind is your testimony yesterday that these American rubber companies knew more about Buna rubber than did the Standard Co.<sup>1</sup> I was wondering what you contributed or expected to contribute in addition to simply the freedom to continue their own operations free from your patent restrictions.

Mr. HOWARD. Well, Mr. Fulton, the patents that we had acquired had been part of a purchase which cost us \$30,000,000, and we hadn't obtained out of that \$30,000,000 more than a very small percentage, let's say a modest percentage, by sales of other patent rights. It didn't seem to me at all unreasonable to expect that out of the rubber patent rights we might get a return of even \$3,000,000 a year for some years—and still we might have had a loss on our total patent purchase.

Mr. FULTON. Your total patent purchase involved what fields?

Mr. HOWARD. Our total patent purchase was primarily for the hydrogenation process, but it also involved other processes.

Mr. FULTON. Catalytic cracking?

Mr. HOWARD. No, sir; not catalytic cracking.

Mr. FULTON. Not catalytic cracking?

Mr. HOWARD. Only incidental rights there.

Mr. FULTON. And nothing in toluol?

Mr. HOWARD. Yes; it involved the germ, as Mr. Farish said, of the toluol process.

Mr. FULTON. And how about the other hydroforming processes?

<sup>1</sup> Supra, p. 4400.

Mr. HOWARD. Yes; it involved that. I should like to point out that at the time in question, however, we had no income from any of the processes that you mentioned that I recall.

Mr. FULTON. Even from your private manufacture for yourself?

Mr. HOWARD. Not at that time, so far as I can recall.

Mr. FULTON. Of course, you now have, do you not?

Mr. HOWARD. Well, we did until Mr. Arnold decided that we shouldn't have it!

Mr. FULTON. Have you given up all the rights in all the patents?

Mr. HOWARD. Under the consent decree, we agreed that we would not collect any royalties under any of the patents purchased from the Germans during the period of the war.

Mr. FULTON. During the period of the war?

Mr. HOWARD. Yes, sir; that is correct.

Mr. FULTON. And after the war, what would be the situation?

Mr. HOWARD. A reasonable royalty.

Mr. FULTON. Which is determined how? I mean have you specified the amount?

Mr. HOWARD. No, sir. I suppose if the Department of Justice didn't agree with our views of a reasonable royalty, it would be left to the court to settle it in the natural way.

Mr. FULTON. That is so provided by the decree, is it, or by your interpretation of it?

Mr. HOWARD. That is my understanding. I shouldn't try to settle the question for the lawyers.

Mr. FULTON. With respect to that, you are talking of having made this available in 1939, and since your statement doesn't cover it, I would like to have you refer to any comments you might have had concerning that statement back in 1935 quoted by Mr. Arnold, and I am quoting: "The Hitler government does not look with favor upon turning the invention over to foreign countries."<sup>1</sup> And then a further statement there that the refusal was, according to your statement before an executive committee of the Standard Oil, "because of military expediency."<sup>2</sup>

Mr. HOWARD. What year was this last?

Mr. FULTON. 1935.

Mr. HOWARD. In 1935, military expediency? All right, may I see those quotations?

Mr. FULTON. This is the Arnold statement. Does that mean that as of that stage there was a refusal to permit development in this country under licenses?

Mr. HOWARD. There are two quotations here which neither in time nor in substance have any relation to one another. The 1935 quotation is from a memorandum by Dr. Hopkins, who at that time had nothing whatever to do with synthetic rubber but was solely occupied with the business of the Standard Alcohol Co. and of the Atlas Tire Co.

Mr. FULTON. Well, that is true, because at that time Standard Oil had nothing whatever to do with synthetic rubber.

Mr. HOWARD. We had, however, a considerable knowledge of that situation, which Dr. Hopkins did not have.

<sup>1</sup> Exhibit No. 377, appendix, p. 4597, at p. 4598.

<sup>2</sup> Exhibit No. 378, appendix, p. 4598.

Mr. FULTON. I thought you termed him yesterday the head of your chemical division?

Mr. HOWARD. Not in 1935, Mr. Fulton. He came to that position some time later.

Mr. FULTON. Then I take it your position with respect to that quotation is what?

Mr. HOWARD. My position with respect to the quotation in question is that Dr. Hopkins did not know the facts. The facts were that in 1935 the I. G. were so discouraged about their own development that they were thinking of trying to buy the du Pont development or find some other way of getting into the synthetic-rubber business. So far as I know—I am quite sure this is the truth—the Hitler government had no interest in the matter at that time with regard to preventing its use elsewhere.

Mr. FULTON. Then, what was the reason for Mr. Hopkins making the statement he did?

Mr. HOWARD. I have no idea.

Mr. FULTON. Have you asked him?

Mr. HOWARD. Yes.

Mr. FULTON. What did he say?

Mr. HOWARD. His explanation was that he knew nothing about the matter and just got that impression from his own mind.

Mr. FULTON. He wrote that without knowing what he was talking about. Is that what he told you?

Mr. HOWARD. That is what I understood you to say, Mr. Fulton.

Mr. FULTON. Is that what he told you?

Mr. HOWARD. Yes; that is about it.<sup>1</sup>

Now, the next quotation that you read and put next to the 1935 quotation is a quotation from a report of mine to our executive committee in 1938, reading as follows:<sup>2</sup>

Mr. Howard deplored the fact that the German Government's restrictions on I. G.'s freedom of action have prevented our (Standard) making material progress in the American field, particularly as there is some indication that the American rubber companies are making independent progress.

Mr. FULTON. Now, first, that is your own estimate, is it not?

Mr. HOWARD. That is correct.

<sup>1</sup> Mr. Howard subsequently supplemented his testimony at this point as follows:

"I should like to quote from the memorandum in question the following sentences:

"It is highly desirable from the Jersey standpoint that if any rights are to be released in the U. S. it should be done through Jersey so that Atlas may benefit, and this should be to the interest of I. G., because Jersey's connection with U. S. Rubber could be used to assure adequate promotion. It is rumored in the rubber trade that the R. T. Vanderbilt Co. has been given samples of the material by I. G. which are not available to others, and if this means that I. G. is considering having their invention handled by Vanderbilt rather than through Jersey interests it may be well to approach the I. G. and explain our viewpoint."

"From this text it is self-evident that Dr. Hopkins did not know that the Jasco Co. had since 1930 had the rights to buna rubber, with the control of the handling of these rights vested in I. G., but with Standard as its minority partner, and knowing everything that was done in the United States. The memorandum in question is self-evidently only a suggestion by an employee who was not at all familiar with the facts, and the reference to the Hitler government is also self-evidently a pure surmise. The actual text of the statement about the Hitler government was:

"So far as I know, foreign rights to the product outside of Germany and full information regarding the manufacture, use, etc., of the product have not been released to anyone by I. G. probably because the Hitler government does not look with favor upon turning the invention over to foreign countries \* \* \*"

"The facts on the attitude of the German Government, so far as they were known to us, I have tried and will try to give you fully."

<sup>2</sup> Supra, p. 4313, and Exhibit No. 378, appendix, p. 4598.

Mr. FULTON. And you were aware of what you were saying at the time?

Mr. HOWARD. Yes, sir.

Mr. FULTON. Now, will you tell us what that means?

Mr. HOWARD. That the I. G. reported to us in 1938 that without the consent of the Government they could not undertake the commercial development of synthetic rubber in the United States, but that they hoped soon to obtain that consent.

Mr. FULTON. And that they not only could not undertake it but that they would not undertake to make licenses with others—American companies here which might desire licenses.

Mr. HOWARD. That was what was meant. The policy of undertaking a synthetic rubber development here, whether by their own capital, whether by their capital with ours, or whether by the rubber companies independently, or in what manner, they could not undertake to determine and act upon until they received the permission of their own government, which permission they then promised me they would attempt to obtain.

Mr. FULTON. And without which, of course, under German law they could not proceed.

Mr. HOWARD. Practically, that is correct, Mr. Fulton.

Mr. FULTON. You deplored that, stating that your reason was that you particularly were deploring it because there was some indication that the American companies were making independent progress. What did you mean by that?

Mr. HOWARD. I meant that we had a very large investment in those buna patents and if the Germans failed to develop them here in time they would find themselves like everyone else who just gets left at the post if they try to hold onto anything too long.

Mr. FULTON. And that was one reason why, or was the reason, you particularly stressed why you wanted to have licenses granted here?

Mr. HOWARD. The only reason we had, the only interest we had in that matter at that time was a financial one, Mr. Fulton. We didn't want to see our money lost through the I. G. holding back too long.

Mr. FULTON. May I have that back? Now, with respect to that, you mentioned a few minutes ago that the American companies had processes for rubber which they gave their own particular trade names to. Were those processes buna processes which you at least contended came within the scope of your patents, that is, by "you," the I. G. Farben and you together?

Mr. HOWARD. The Thiokol process had no reference to any of our patents. The Neoprene process had no reference to any of our patents. The Koroseal process had no reference to any of our patents. There was a patent question in connection with two developments. The Goodrich Ameripol development and the Goodyear Chemigum development were developments based on butadiene. We don't know to this moment, Mr. Fulton, exactly what those developments were in detail. We expected they infringed our patents and we were ready to try that issue before a court, but we couldn't get the exact information without actually bringing a lawsuit and asking them to come in and show whether they were or were not infringing our patents.

Mr. FULTON. Were you discussing with them the question of whether they should take licenses under this arrangement?

Mr. HOWARD. We began the discussions as soon as we acquired control of the patents; yes, sir.

Mr. FULTON. As I understand it, these patents that you refer to as controlling were general patents on the general method rather than specific patents on the technic.

Mr. HOWARD. Well, they were patents primarily on the formula itself, and there were improvement patents on details of manufacture.

Mr. FULTON. But the trouble with that would be that so far as you had only a formula, if these other companies deviated from that formula, as they certainly in some respects almost necessarily would be doing, they would be raising the question of having a different technic and of your patent description insofar as its being general, too general, is that not correct?

Mr. HOWARD. Certainly they raised the question, assuming that they were making a product nearly the same, whether it did or did not come within the patents, and we were quite prepared to let that question be settled by the court.

Mr. FULTON. And as an expert of patents, I assume you are quite well aware of the fact that general patents, particularly on processes, are very dangerous things to rely on, are you not?

Mr. HOWARD. Well, I think all patents are pretty dangerous to rely on, Mr. Fulton.

Mr. FULTON. But I mean so far as they were developing a technic of their own and a compounding formula of their own, it is a very serious question in all such cases as to whether a general patent can be sustained as against the more specific and somewhat different technic of an individual operation.

Mr. HOWARD. It is always an uncertain question, Mr. Fulton.

Mr. FULTON. Is that why you were indicating a feeling that there was danger in allowing these American companies to make independent progress, because the more progress they could make, the further they would be going outside your patent umbrella?

Mr. HOWARD. No, sir. Our reason simply was the result of our own experience, which I think almost all large companies have had, and that is no matter how strong your patent position may be, if you do not yourself actively go into the market and fill the entire market, somebody will come along and despite all patents take that market away from you within a short time, and we didn't wish to see our investment in these patent rights lost through the I. G.'s inability to get permission to move forward here fast enough to salvage it.

Mr. FULTON. But in stating that, you as a lawyer are fully aware of your right to enjoin an operation which is in truth and in fact an infringement of your patent, are you not?

Mr. HOWARD. Yes, sir; but as you just pointed out, your chances of getting such injunction are highly speculative.

Mr. FULTON. Because if you allow them to go into independent improvements they get a sufficient technic of their own so that it is exceedingly difficult to prove that it comes within the general technic, is it not? And that is why if you wait long you have less chance than if you start early. Hasn't that been your experience?

Mr. HOWARD. I think in my experience the attempt to enforce patent rights is always very largely an equitable question. If the court has the impression that you really ought to have the benefit of that monop-

oly granted, they usually find some way to give it to you; if they have the impression that it wouldn't be fair or equitable for you to enforce that patent, you don't get it for some equally good reason. That is a summation of my experience with it.

Mr. FULTON. In other words, the court, you think, decides with the heart and not with the head.

Mr. HOWARD. I think in patent matters the equities of the matter are much more important than the legal details, Mr. Fulton.

Mr. FULTON. And as a result of that, I note also this statement, quoting again, which you are said to have written as of April 20, 1938:<sup>1</sup>

Until we have this permission—from Germany—  
interposed there by Mr. Arnold—

there is absolutely nothing we can do, and we must be especially careful not to make any move whatever, even on a purely informal, personal, or friendly basis, without the consent of our friends.

Do I take it that you did make no move whatever?

Mr. HOWARD. Yes, sir. Our friends, the I. G. at that time, were promising that they would obtain as quickly as possible the permission of their government to proceed to the United States. That permission they obtained before the end of the year 1938, and at the end of that year their representative came here and interviewed the leading rubber companies and arranged with them to send samples of the material and an expert over to see whether they would become interested in undertaking a commercial development in the United States.

Senator O'MAHONEY. When was that?

Mr. HOWARD. In December of 1938, Senator O'Mahoney.

Mr. FULTON. And was that limited to the use of the material or to the actual manufacturing of the material?

Mr. HOWARD. The assumption was that they would be engaged in the manufacturing.

Mr. FULTON. And you were imparting information with respect to the manufacture?

Mr. HOWARD. No. The only thing on which information was being sought or imparted at the time was the commercial value or possibilities of the material to determine whether the parties wished to undertake a commercial development of it in the United States.

Mr. FULTON. When, if ever, did you impart the information as to the manufacture.

Mr. HOWARD. As soon as we could issue the license under our patents here.

Mr. FULTON. When was that?

Mr. HOWARD. As soon as we acquired the patents, within 2 or 3 months after, at the end of 1939 or the first months of 1940.

Mr. FULTON. And in the first months of 1940 you imparted the information of the I. G. as to the commercial manufacture of rubber to what company?

Mr. HOWARD. Such information as we had to Firestone Tire & Rubber Co. and that information—

Mr. FULTON (interposing). I asked you whether you imparted the German commercial manufacturing experience.

<sup>1</sup> See Exhibit No. 379, appendix, p. 4599, at p. 4600.

Mr. HOWARD. We did not have at that time the German commercial manufacturing experience. The war in Germany intervened before we were able to get the commercial designs from Germany. After the war they were unable to furnish any information whatever on German industrial processes.

Mr. FULTON. And when you limited your answer to such information "as we had," that I suppose would relate back to the answer you gave yesterday that at the end of 1939 or rather in October 1939, you didn't even have a laboratory operation and were far behind the American rubber companies. Is that correct?

Mr. HOWARD. I think in the actual manufacture of buna rubber the baking of bread, so to speak, we were behind the bakers, who are the American rubber companies. Our position, Mr. Fulton, was, not that of baker; our position was that of miller. Our job was to provide the flour out of which the bread was to be made. That is, our job was to find some way to provide butadiene from which the rubber companies could make cheap rubber on a large scale if they had to.

Mr. FULTON. That had nothing to do with the actual manufacture of buna?

Mr. HOWARD. No; the manufacture is like the baking of the bread is; a problem that was relatively simple. It had never interposed, as you gentlemen know that Mr. Batt has testified—and to this moment has never interposed—technical difficulties or any possibilities of delay and never has done so.

Mr. FULTON. And you regard butadiene, and styrene as the only important aspects of the synthetic-rubber picture, then?

Mr. HOWARD. In butadiene, I should like to point out, the small scale production of butadiene, there is no problem. The chemical industry of the United States was able to supply Mr. Jones by sale contracts very large quantities of butadiene without requiring any investment of Government money, recovering that as a byproduct. The butadiene could be obtained here in quantities sufficient for any possible specialty market without development of special processes, but the problem was to get cheaper butadiene in the first place, and much larger quantities in the second place.

Mr. FULTON. And to do that you had to have hydrogenation, did you, or hydroforming?

Mr. HOWARD. No, sir; you had to have brand-new processes of working on oil and gases and natural gas. That is what we have been trying to do since 1931, to find such processes.

Mr. FULTON. And did those processes involve hydrogenation or hydroforming?

Mr. HOWARD. No, sir.

Mr. FULTON. Did they involve catalytic cracking?

Mr. HOWARD. Catalytic cracking is one method that now seems to lend itself to that.

Mr. FULTON. With respect to that butadiene, I am only trying to ascertain whether you obtained that from the Germans.

Mr. HOWARD. As I read into the record yesterday, the Germans have cooperated with us actively in the production of butadiene from natural gas and oil gases in the United States from 1931, spending several hundred thousand dollars of their own money here.



Mr. FULTON. I refer not to cooperation but to the question of who developed it, or if you can't answer that, which one made the major contribution, Standard or I. G.?

Mr. HOWARD. I think we made the major contribution. I am quite sure we did, Mr. Fulton.

Mr. FULTON. Going to this April 14, 1938, letter which Mr. Arnold read, being a letter which you are said to have written:<sup>1</sup>

Our primary objective in our talk with the Goodyear and Dow people was to convince them of our good faith and our willingness to cooperate with them in order to avoid having them proceed prematurely with an independent development which would make it impossible to bring them into any general plan later.

First, was such a letter written?

Mr. HOWARD. I believe so.

Mr. FULTON. Have you checked because we wouldn't want any question of it?

Mr. HOWARD. I believe so, Mr. Fulton.

Mr. FULTON. And second, what was the general plan that you were afraid you wouldn't be able to bring them into later?

Mr. HOWARD. I would like first to state that the negotiation in question was one in which the Goodyear and Dow Companies, who had some arrangement between themselves in synthetic rubber, were requesting from us and from the I. G. an exclusive license for the United States under the buna process. That was the way they approached this negotiation.

Mr. FULTON. And you, of course, in this letter indicated the desire—

Mr. HOWARD (interposing). We did not think it was good for them or the country or for anyone to grant an exclusive license under the buna patents in the United States; and the second part of the letter referred to this point, that we felt then as we have always felt, and subsequent events have shown that it is true, that the manufacture of tire rubber as an element in the defense of the United States cannot be conducted as an independent, competitive development. It can only be conducted either by general industry cooperation in some way in which industry itself removes the competitive hazards that are involved in that, or else the Government must step in and take control of the matter, and that is the road that has actually been followed. One road or the other was an absolute essential to permit the development of synthetic tire rubber in the United States.<sup>2</sup>

<sup>1</sup> See Exhibit No. 380, appendix, p. 4600, at p. 4601.

<sup>2</sup> In this connection Mr. Farish subsequently quoted from his letter to Mr. Litchfield of August 1, 1940 (previously entered in the record as Exhibit No. 459, see appendix, p. 1736,) as follows:

"It was my impression after our talk last week that we both thought that if the Government is obliged to supply a large amount of capital to build synthetic rubber plants for national defense purposes immediately, it would be very much better to have these plants built and owned by a company representing the entire rubber industry than to have private deals between the Government and individual companies under which the Government lent each company money to back its own particular project. If the projects of private companies are financed by the Government as an emergency measure, these companies will obtain a head start over all competition in this important synthetic rubber field at Government expense—which seems unfair in the first place, and in the second place, destructive, because it would tend to prevent normal development of the privately financed competitive projects, which in the long run should take over the bulk of the market."

Mr. FULTON. But assuming that they perhaps might have differed with you, which is what you are indicating here, that they might have proceeded with an independent development, which although in your opinion was unwise, what wrong would the country suffer by that, making it impossible for you to bring them into any general plan later?

Mr. HOWARD. Well, if the Goodyear Co. had refused to come into any general plan, I am quite sure that the other rubber companies would have said, "Well, if Goodyear won't come in, we won't come in either."

Mr. FULTON. That would mean, in effect, that Goodyear and Dow perhaps in competition with other companies would have been making rubber, which they would make from raw materials that they obtained at any place they found they could obtain them. Is that correct? Perhaps from a company not associated with Standard Oil.

Mr. HOWARD. Which question am I to answer, Mr. Fulton?

Mr. FULTON. I mean, is that what you had in mind, that they might undertake an independent development with independent suppliers of material and that you were afraid they would do it unless you could get them a license?

Mr. HOWARD. What I had in mind was that if they undertook an independent development it would make it more difficult to work out a common development by the rubber industry in the United States, which we believed then and still believe was the only way by which that could have been done unless the Government itself did it.

Mr. FULTON. And suppose they went ahead and developed it independently. How would that affect you?

Mr. HOWARD. It would have affected us because it would, as I explained, make it more difficult if not impossible to get the other leading companies to go into a joint development.

Mr. FULTON. To combine in a joint development.

Mr. HOWARD. That is correct.

Mr. FULTON. So that as of this time you had in mind trying to get industry to go in a joint development. Now, how were you going to do that, by a contract?

Mr. HOWARD. Well, we didn't know exactly how.

Mr. FULTON. Were your lawyers asked whether it would be legal under American law for the various companies to contract to go into a joint venture of that kind?

Mr. HOWARD. Yes; sometime later, after the Army and Navy Munitions Board expressed a preference for that route, we actually tried to outline some possible plan for that, and as you suggested, Mr. Fulton, our lawyers said, "We don't see any way under which under the American antitrust laws and patent laws, it would be possible for all these competing units to pool their developments in synthetic rubber; however desirable that might be, it is not lawful under the American antitrust laws."

Mr. FULTON. Contracts of that kind have repeatedly been held to be in violation of the antitrust laws, have they not?

Mr. HOWARD. I had perhaps the naive theory that the national interest in such a rubber development was so great that in this case

it might turn out to be a possible road to go, but our lawyers decided not.

Mr. FULTON. I still don't see how the national interest is necessarily affected. If the Goodrich Co. should independently, without regard to you, build a plant and obtain raw materials, and that should make it impossible for you to bring them into your picture, why wouldn't it be possible for them independently to make rubber, Mr. Howard?

Mr. HOWARD. No one company could independently make tire rubber costing from 20 to 30 cents a pound and make tires out of that, and sell it in competition with its competitors who are making tires out of natural rubber costing from 10 to 15 cents a pound; unless some means were found by which the competitive pressure to get the cheapest, best tire was removed, there could be no development of synthetic rubber commercially in the United States—that is, failing Government subsidy.

The CHAIRMAN. But Goodrich did do that to the tune of about 2,000 tons of rubber a year, and they have tires running right now.

Mr. HOWARD. They found enough public-spirited individuals in the country to pay a premium price for a new and curious product, Ameripol, so that they were able to sell a small quantity of those. That was not a development that had any significance with regard to plans for this emergency. They recognized that, and they were constantly looking for something that would be really effective to accomplish the result.

Mr. FULTON. And you think the companies themselves were voting for this general plan—because I noted in an exhibit something that made me believe they voted against it.

Mr. HOWARD. I believe the conclusion we all came to, Mr. Fulton, was that no matter how desirable and how rational that might be, it was just impossible under the conditions in America, and we would have to turn to the Government to solve the problem. We couldn't solve it ourselves.

Mr. FULTON. How would that affect the Government one way or the other, because if the tires cannot be made cheaper and they have to be made expensively, because of the nature of the rubber, how are they made any more cheaply by having one company do it than they are by having three or four companies in competition with each other do it?

Mr. HOWARD. The first point is the economy of large-scale manufacture, and that was discussed by all the parties at the time and everyone agrees to the principle. That is, if made in a single plant, the requirements of this buna-S synthetic rubber for America, for the tire companies, would be produced more cheaply than if made in four separate plants.

Mr. FULTON. But as I understand it, our plan involves many more than four plants, and it has to involve that because of the difficulties of transportation, doesn't it?

Mr. HOWARD. The present plan that you are talking about, Mr. Jones' program of 400,000, and now 700,000 tons, is, of course, so enormous that it is an impossibility to concentrate it, but the idea of the parties at the time who were having these discussions was in terms 10, 20, or 30 thousand tons of production instead of a possible 4 or 5

thousand tons—four 1,000-ton plants. That was the practical picture before us at the time.<sup>1</sup>

Mr. FULTON. And was that true when you were discussing a 100,000-ton project in the summer of '40, when I believe you were still advocating this joint company?

Mr. HOWARD. I believe in considering the economies in manufacture the breaking point is probably very near 100,000 tons as regards the rubber itself. On the various raw materials the breaking points for economical production may be lower than that.

Mr. FULTON. Are we building anywhere a rubber plant that will have 100,000-ton capacity—without naming the place?

Mr. HOWARD. Yes, sir; I believe there will be one or two such plants, at least; probably more.

Mr. FULTON. And now with respect to butadiene, which of course you described as the principal expense, are we building a butadiene plant to take care of 100,000-ton capacity?

Mr. HOWARD. I think we are building two plants that I know of, of considerably larger capacity than that.

Mr. FULTON. And styrene?

Mr. HOWARD. I can't answer as to styrene.

Mr. FULTON. Is Standard building a styrene plant?

Mr. HOWARD. No, sir.

Mr. FULTON. Now, going to the terms of those licenses which Senator Kilgore took up, why was the provision inserted in the license which was granted in '40 requiring them not to sell the products otherwise than in connection with articles they themselves manufactured? Reading the terms:<sup>2</sup>

The rubber company takes a license to produce for consumption in its own product, but not for sale otherwise.

Mr. HOWARD. We thought that we were entirely justified, under our patents, in trying to preserve for ourselves the exclusive right to sell to such rubber manufacturers as did not want to manufacture their own requirements. In other words, we didn't want, let's say, the Trenton Rubber Co. to be in a position where they would only buy from us if they didn't want to take it from Goodyear. We thought it would be much better that they should not be able to buy from Goodyear; that we should be like du Pont and the others in command of the free market outside of the manufacturers that produced for themselves in specialty rubber.

Mr. FULTON. You mean by that, if Firestone, Goodrich, Goodyear, and other companies took licenses and had excess product, that you didn't want people who wanted to buy that, to be able to play one of those companies off against the other in the purchase of it? You wanted them to deal solely through you in the purchase of any such surplus?

Mr. HOWARD. Yes, Mr. Fulton. Our position was quite simple. As owner of the patent we might have properly and without criticism monopolized the entire business, as all the other manufacturers

<sup>1</sup> At this point Mr. Howard later again referred to the B. F. Goodrich Co. letter of January 11, 1940 (see appendix, p. 4799) in which the Goodrich Co. stated to Standard Oil Development Co.:

"On buna-s our viewpoint was quite different, for we see no reason to undertake commercial production on a basis of less than 200,000 pounds per day" (36,500 tons per year).

<sup>2</sup> See Exhibit No. 382, appendix, p. 4602, at p. 4604.

of specialty rubber were doing. Instead of taking that position we said "We will let any rubber manufacturer manufacture for his own requirements, but we will not let him compete with us by selling to his own competitors. We alone will sell to his competitors."

Mr. FULTON. But I understood you to say a few minutes ago that was impossible, because if you attempted a monopoly position of that kind you would be faced with two alternatives: either the industry would go ahead without you and you thought your patents would be unenforceable in the courts because of the courts' opinions on equity, or on the other hand you would have had to go out yourself, which you apparently were unwilling to do, and build these rubber plants. You had one of those three alternatives, didn't you?

Mr. HOWARD. We were quite ready to build rubber plants, and did so, to supply the specialty market. Mr. Fulton. We started immediately in 1940 and our plant was completed early in '41 to supply the specialty market. As a matter of fact, the plant was overbuilt for our proportion of the specialty market, and we accumulated a large part of the production of the plant as surplus production for a time after it was built, being unable to sell it.

Mr. FULTON. You are talking of specialty rubber?

Mr. HOWARD. Yes, sir.

Mr. FULTON. And then this high royalty rate of 7.5 cents per pound is fixed, and as I remember Dr. Hopkins' language, he states that "The reason is so as to make the operation practical for the rubber company only so long as the product is used as a relatively high cost specialty." Was he speaking officially? Is that another of his inadvertent statements when he said that was the reason for fixing that royalty that high?

Mr. HOWARD. No; Dr. Hopkins was quite right.<sup>1</sup> We were trying to keep the situation open to permit the formulation of the soundest policy and we did not want, by keeping the situation open, to prevent these rubber companies from meeting their immediate requirements. We, therefore, gave them licenses, which suited their immediate requirements but still left us with enough control over the picture to try to work out some more rational and constructive plan, if it could be done. We abandoned that hope in the middle of the year when the Government itself undertook to try to solve the rubber problem. From that time on we released all restrictions on the tire rubber and reduced the royalty rates to a point where there was no longer any difficulty about it.

Mr. FULTON. Then the following paragraph is in effect correct, being that, "The effect of these terms is to limit rather drastically what the rubber companies may do under their license."<sup>2</sup>

Mr. HOWARD. That is correct, sir.<sup>3</sup>

<sup>1</sup> In this connection Mr. Howard later stated that:

"In the letter from which you read one sentence, you will find that Dr. Hopkins said in the preceding sentence:

"The principal difficulty results from our desire not to make any commitment which would prevent us from eventually carrying out our first thought outlined in my letter to you dated November 30, 1939, to bring about a concerted effort in a single plant which might afford economies not attainable in separate plants operated independently."

<sup>2</sup> Exhibit No. 382, appendix, p. 4602, at p. 4604.

<sup>3</sup> The following information was subsequently submitted by Mr. Howard:

"To clarify this matter, I submit Dr. Hopkins' letter of November 30, 1939, to Mr. T. G. Graham, vice president of the B. F. Goodrich Co., which was referred to in Dr. Hopkins'

Mr. FULTON. "And to leave Jersey free to itself manufacture and sell."

Now the patent attorney said that the agreement as it is now drafted will lead to the centering of all patent rights of licensees in the hands of licensor. Does that mean that your licenses required these specialty companies to give you the patents on the improvements in the technique?

Mr. HOWARD. We gave them all of our basic patents and all of our improvements under the single royalty.

Mr. FULTON. I asked what you required.

Mr. HOWARD. They gave back to us all of their improvements.

Mr. FULTON. Under that, the effect of this arrangement, which you have termed a stopgap, was that with a patent which you were afraid would be no good if something wasn't done, you were enabled to operate with the companies and obtain their improvements in technique; is that true?

Mr. HOWARD. In return for our improvements, Mr. Fulton, we obtained their improvements, yes, sir; that is correct.

Mr. FULTON. And the effect of that would be that you were going from the general patent picture, of which you were somewhat afraid, to a more specific one relating to specific techniques.

Mr. HOWARD. No, sir. I would like to point out that we didn't get any United States patent licensing rights whatever from these licensees. We had no monopoly of their patents nor any right to license their patents, only a right to use them, a simple shop license under them.

Mr. FULTON. And to use them in any rubber experimentation you might have?

Mr. HOWARD. The scope of the license we gave them and the cross-license they gave to us was exactly the same in all respects.

Mr. FULTON. In other words, the result would be that as to each licensee, he would give to you whatever improvements he made for your use.

Mr. HOWARD. For our own use only; yes, sir.

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letter of January 10, 1940, from which you have just quoted. The pertinent portion reads:

"Following discussions with your company and other rubber companies as to the best procedure for advancing the Perbunan synthetic rubber development in the United States, we have arrived at a plan which we wish to submit for your consideration.

"Our first thought in this matter was to invite certain rubber companies to participate in a manufacturing company which would supply both Perbunan and buna-s to the participants and also to the trade generally. It was thought that a concerted effort in a single plant might realize economies not attainable in separate plants, operated independently. Production of the higher cost specialty, Perbunan, in this plant might be followed by production of buna-s, the material used by the Germans for tires. Centralized facilities seemed most likely to make possible a quick production of buna-s to serve the national defense in case natural rubber supplies are cut off.

"It seems, however, to be of paramount importance that Perbunan be manufactured in the United States as quickly as possible so as to take care of the requirements of present Perbunan users. They can no longer depend upon obtaining the imported material. The time required to bring a group of companies together to meet this situation is not available. Also, to the extent that raw materials can be obtained from existing facilities in oil refineries and chemical plants and need not be manufactured at the synthetic rubber plants, the manufacturer of Perbunan does not require very large-scale investments or production to be economical.

"Some of the rubber companies are prepared to get into production upon short notice. Others may wish to have it manufactured for them. We therefore decided to defer consideration of the plan for a single plant and to offer to license your company and certain other rubber companies who are willing to proceed immediately to produce their own requirements and provide by contract with us for supplies which we will sell to the trade generally.

"A form of license has not been prepared but the following are items tentatively arrived at for inclusion in licensing agreements:" (See appendix, p. 4801, for entire letter.)

Mr. FULTON. But he would not obtain the benefit of any improvements made by any other licensee.

Mr. HOWARD. He could obtain those by dealing directly with the other licensee. May I say, Mr. Fulton, that the alternative to that course—

Mr. FULTON (interposing). That would be an additional royalty proposition?

Mr. HOWARD. No; it might be by a simple exchange between the two licensees. I know Senator O'Mahoney will be interested in this patent question. Early in the 1920's the Standard Oil Co. of Indiana and several other companies, including our own, were attacked on an antitrust case, the substance of the charge being that we had tried to monopolize patent rights by granting licenses on the condition that the licensee should give us back a right to license his patents to other people. Now the Department of Justice said, "That is a device by which you acquire a monopoly of the licensing business."

Mr. FULTON. That would be the effect of it, wouldn't it?

Mr. HOWARD. The Supreme Court held otherwise, as perhaps you gentlemen know. But at any rate, we knew that was a criticism that could and would be made of any licensing arrangement under which we took back the right to license the licensee's patents to others. The Attorney General's office, the Assistant Attorney General in charge of antitrust cases, thought that we should leave others entirely free to deal among themselves with regard to their own patent rights, and should confine ourselves to getting what we needed for our own operations. Anything else, he said, would be creating a monopoly of monopolies. And while we avoided that charge or criticism in this plan here, we immediately ran into the other difficulty that our patent attorney quite properly pointed out, and I can frankly tell you gentlemen, I don't know what is a perfect solution of the cross-licensing question. Whatever you do, you can be charged with having done something that is subject to criticism.

Senator O'MAHONEY. Mr. Howard, is not the difficulty here that your organization, which is without question the largest industrial organization in the world, was in a cartel arrangement with a German organization which likewise occupied a similar position in Europe, and the two of you together were using your patents and your research facilities to control the particular businesses in which you were involved, wherever they were carried on; that after the advent of Hitler upon the scene in Europe, I. G. was guided wholly by the policy and program of Mr. Hitler, and Standard was endeavoring to the best of its ability to get what it could from I. G.; I. G., however, was not, because of Hitler's refusal to permit the development of synthetic rubber in the United States, willing to give you the information that you wanted. Yet you were under an obligation set forth in the first place in the contract signed by Mr. Teagle, and later explained in the so-called Hague document.<sup>1</sup> You were endeavoring to carry out what you deem to be your obligations.

Now, if you will permit me to say so, this is the picture that I get out of all this testimony; and please believe me, I have no desire to trip you or Mr. Farish, or to cause you any embarrassment. The

<sup>1</sup> Exhibit No. 366, appendix, p. 4583.

question is too big for that, and I am ready to acknowledge that so far as I can see, it is the intention of all of the officers of Standard loyally to support the American Government. But this question is very much broader than that.

Is it not a fact that I. G. was refusing for years to give you the information that you wanted to develop the synthetic-rubber industry here?

Mr. HOWARD. Senator, I should say the period of that refusal was not in excess of 1 year—that is the year 1938. As late as 1937, the I. G. and ourselves were both very much discouraged over the prospects of doing anything with the buna synthetic rubber commercially. It was being fostered in Germany under heavy governmental support, but as to making any money out of it here, we were both discouraged.

Senator O'MAHONEY. Let us assume that that covers the entire period. Is it not a fact that during the same period, American rubber companies were independently developing the process, or similar processes?

Mr. HOWARD. Not commercially, Senator.

Senator O'MAHONEY. I don't mean that. Their research enterprise was going along the same lines that you have been traveling.

Mr. HOWARD. Yes, sir.

Senator O'MAHONEY. Then is it not a fact that you saw this advance of the rubber companies in the United States over which you had no control, and then you conveyed that knowledge to I. G. and said, "Now, you have got to do this. You have got to give us this information or we will lose the field," in effect?

Mr. HOWARD. Senator, it was not a question of their giving us information. What we asked of the I. G. in 1938, and what they said they couldn't give us without the permission of the Government, was the beginning of actual plans for a commercial development of synthetic rubber in the United States.

Senator O'MAHONEY. Whatever it was, you argued with them to give it to you, did you not?

Mr. HOWARD. We were arguing with them to start their commercial development in the United States by some method, we didn't care what—to start it.

Senator O'MAHONEY. And was it not your purpose primarily to make sure that Standard and I. G. would beat the rubber companies to it and gain control of the field? Now, understand, you and I. G. had the patents, and I can see that it would be a perfectly normal thing for you to do, to try to make those patents stand up. Isn't that what you were trying to do?

Mr. HOWARD. Yes, sir; we certainly wished to do that, Senator.

Senator O'MAHONEY. Now, Mr. Farish in his testimony yesterday referred to a letter which he had written to Deupree of O. P. M. as an indication of the desire of Standard to cooperate. Is it not a fact that Mr. Deupree is, in fact, the president of Procter & Gamble?

Mr. HOWARD. Yes, sir.

Senator O'MAHONEY. And is it not a fact that Procter & Gamble, and Mr. Deupree, also had dealings with I. G. over synthetic fats?

Mr. HOWARD. Well, not so far as I know, save through this Jasco Co. we speak of, Senator. There was a contract made with them by Jasco.



Senator O'MAHONEY. But here is Procter & Gamble, another huge company, which on its part was endeavoring to control this field. Now, there is the situation which is presented here, is it not? Have I misstated it in any way, Mr. Howard?

Mr. HOWARD. Senator, I think that you perhaps don't do those of us who are engaged in the production side of industry quite justice in that statement.

Senator O'MAHONEY. I certainly want to give you justice. I see a patent—

Mr. HOWARD (interposing). No, sir; but that was not my point. When you say that the effort of Procter & Gamble Co. was to control synthetic-fat development, I think that is a very, let's say, unfair interpretation. I should say more correctly their purpose was to try to find some way to develop a commercial production of synthetic fatty acid so that if the imports of coconut oil were cut off they would have a source to turn to for coconut oil.

Senator O'MAHONEY. Let's abandon all question of Procter & Gamble's attempt to gain control. The only question that is really involved here is Standard and I. G. I cited Mr. Deupree merely because, as the head of Procter & Gamble, he was operating in a similar way, and I was about to ask you if it is not a fact that Mr. Deupree wrote a letter to the Standard in which he congratulated the Standard on having secured Government recognition for its patents, and in which he said that he knew you were trying to set your patents up?

Mr. HOWARD. I don't know of such a letter.

Mr. FULTON. Would this refresh your recollection?

Senator O'MAHONEY. I think, Mr. Chairman, it is in the files of your committee.

Mr. FULTON. The first paragraph, particularly.

The CHAIRMAN. Will you read that, Mr. Howard, please?

Mr. HOWARD. This is a letter from Mr. Deupree to me, dated November 10, 1941.

Mr. FULTON. At which time he was Chairman of the O. P. M. Rubber Section, was he not?

Mr. HOWARD. I don't know. He was either in the O. P. M. or in the R. F. C. as an adviser.

Senator O'MAHONEY. The testimony of Mr. Farish was that he was in O. P. M.

Mr. HOWARD. He was originally, but at a certain stage he became adviser to Mr. Clayton.

Mr. FULTON. In writing that letter he was referring to information he obtained in his official capacity, was he not?

Mr. HOWARD. I don't know, Mr. Fulton; I am sorry.

The CHAIRMAN. Read the paragraph. He was connected with O. P. M., and in an advisory capacity with the R. F. C. in this rubber set-up when he wrote this letter, so go ahead.

Mr. HOWARD (reading from Exhibit No. 461):

I was delighted to get a note from Will Clayton saying they had come to an understanding with you in regard to a royalty on the rubber matter. It may not mean so much in money, but I think it does do the thing that I was terribly concerned with, and that is to have them recognize your patents.

Mr. FULTON. Who was Mr. Clayton?

Mr. HOWARD. Mr. Clayton was the Deputy Loan Administrator who, under Mr. Jones, had general supervision of the business side of the synthetic rubber program.

The CHAIRMAN. Mr. Clayton is a cotton man, is he not?

Mr. HOWARD. Yes, sir.

The CHAIRMAN. He is with Anderson & Clayton Cotton Co. in New Orleans, the biggest cotton dealers in the world.

Mr. HOWARD. That is correct.

The CHAIRMAN. That letter may be made a part of the record at this point.

(The letter referred to was marked "Exhibit No. 461" and is included in the appendix on p. 4738.)

Mr. FULTON. Why was Mr. Deupree so concerned that the R. F. C. should recognize your patents?

Mr. HOWARD. The history of our patent negotiations with the R. F. C. will explain that. When the R. F. C. decided to finance a program of developing synthetic rubber, they realized there would be some patent questions involved. They approached us with the suggestion that we offer some sort of license to cover their program. We immediately offered them a license on a flat rate of 3 percent for all the rubber produced by the Government. I would like to say, gentlemen, that the controller of patents in England, under a compulsory licensing proceeding, had just fixed a rate of 5 percent judicially in England as a fair royalty for the same patents. We asked the R. F. C. for 3 percent. Mr. Clayton retaliated by saying, "We don't think you ought to get any royalty at all."

We didn't agree to that for this reason: We said while we realize this is an emergency development, we think it would be killing the goose that lays the golden eggs, for the Government to take the position that it cannot and should not pay royalties when it runs into an emergency of this kind. If the Government takes that position, there will be no incentive on the part of anyone to try to develop things which are useful only in the case of an emergency, if the fact of the emergency itself is a reason for not paying anything for it. That was a philosophical viewpoint—they having one side and we the other.<sup>1</sup>

Mr. FULTON. My question was: Why did the head of the O. P. M. Rubber Section express his own "terrible concern" that your patents should be recognized?

Mr. HOWARD. Mr. Deupree wasn't interested, so far as I know, in our patents at all. Mr. Deupree was only interested in the principle involved that I have just referred to—that is, is it fair or is it against

<sup>1</sup> Mr. Howard subsequently submitted the following additional information. The letter referred to appears in the appendix on p. 4802.

"I suggested arbitration and when Mr. Clayton stated that it would be difficult to find an arbitrator I suggested as an example Mr. W. H. Davis, a New York patent lawyer who of course had never had any relations at all with our company and who was actually at the time chairman of the National Defense Mediation Board. To further clarify this matter I submit Mr. Clayton's letter to me of October 27, 1941 proposing a waiver on all royalties until such time as 'it becomes possible to manufacture and market the product of these synthetic rubber plants on a commercial basis at a profit,' at which 'we are prepared to give careful consideration \* \* \* to a payment of a 3% royalty on the use of your patents.'

"I call attention to the fact that on this letter my secretary endorsed, a few days after October 25th, on verbal advice from me, the following notation: "FAH saw Clayton afternoon of Oct. 27. Clayton suggested solution as follows, which FAH accepted:

"1. No royalty first year.

2. 1% second year.

3. 3% thereafter."

the public interest for the Government to take the position that on torpedoes or synthetic nitrogen or synthetic toluol, or anything else it needs in time of war, it is not fair to pay royalties because the country is at war?

Senator O'MAHONEY. That, of course, gets away from the objective which I had in mind in referring to Mr. Deupree.

Mr. FULTON. I had one further question on that, Senator O'Mahoney, which I think might clear it up: Was there any partnership between Procter & Gamble and the Standard Oil Co., or anything which you referred to as a partnership in these patent situations?

Mr. HOWARD. Not with relation to synthetic rubber, Mr. Fulton. They never had any relation whatever to us in synthetic rubber.

Mr. FULTON. I show you a memorandum which I understood you were familiar with, which states [reading from Exhibit No. 462]:

Without additional cost to us, the rights of the competing group become available to us (Jasco) in the United States. The Procter & Gamble Co., who have a limited partnership with us in connection with this process, do not yet know of the German development, but without such knowledge have agreed to accept the output of a small commercial plant in the United States.

Are you familiar with that?

Mr. HOWARD. That refers to the synthetic fatty acid development that Procter & Gamble was engaged in.

Mr. FULTON. Which was one of the developments coming out of these hydrogenation and hydro-forming processes as to which you made the division-of-fields agreement, was it not?

Mr. HOWARD. Yes, sir; that is one of the processes used in Germany for their self-sufficiency program that we acquired under this agreement.

(The memorandum referred to was marked "Exhibit No. 462" and is included in the appendix on p. 4738.)

Mr. FULTON. So that when the O. P. M. Rubber Section head is speaking of his terrible concern, he might at least have had in mind what you people describe as a limited partnership between his company and Standard Oil in connection with those patents.

Mr. HOWARD. I think that is very unjust to Mr. Deupree. The only concern he ever expressed was whether the principle was sound that the Government should say, "We don't want to pay any royalties in time of war for emergency material." Mr. Deupree was keenly concerned because he thought that was an unsound principle, and I have heard him say he argued it repeatedly with Mr. Jones, who took the opposite view.

Senator O'MAHONEY. Of course, it could be understood that there may be two points of view about this matter of handling patents. As a matter of fact, we all know there are at least two points of view. I suspect that you hold one and I hold another. But I am here interested only in developing the facts and getting the facts correctly before the country. Therefore, I cited this letter from Mr. Deupree, which was written in November 1941, in which only a few months ago Mr. Deupree was expressing to you his congratulations because you were making your patents stand up. This is the same Mr. Deupree whom Mr. Farish quoted approvingly in his testimony yesterday.

Now, in this morning's New York Times,<sup>1</sup> I find a front-page editorial which attempts, not to tell the story of what happened here yesterday, but to tell the Standard's story. Let me quote it. This is under the byline of Mr. Frank L. Kluckhorn.

The CHAIRMAN. And he uses that part of the Standard statement which has not yet been made a part of the record.

Senator O'MAHONEY. Of course, it has been floating around here and he could naturally use it. I don't hold that against him.

The CHAIRMAN. He wasn't quoting the committee.

Senator O'MAHONEY. I am reading now from the New York Times front page:

Mr. Farish also contested from the witness chair accusations leveled by Senator O'Mahoney that he had sought to cover up in his statement to the committee on the cartel arrangements with I. G. Farbenindustrie, the German chemical trust, and disputed a renewed charge that Standard had restricted synthetic-rubber production in the United States by seeking to form a monopoly to control prices.

Now observe this language:

No attempt was made by the Government or committee members today to answer Mr. Farish's assertions yesterday that the United States would not have had synthetic-rubber patents had it not been for Standard's relations with the German trust.

Now I refer the New York Times and its correspondent here to the Deupree letter. Let that be the answer.

Let us go a little bit further. We have the situation clearly developed that Standard and I. G. were in a cartel arrangement, and that they were working together, that when independent companies in the United States began to make certain progress, Standard induced I. G. to overcome the resistance of the Hitler government and to attempt to set up here the synthetic-rubber process. Now, that leads us directly to the question of what is to transpire after the war. The relationship between the two huge corporations such as is represented here, controlling a vital industry, in fact, two vital industries, is of tremendous importance to all the people of America, and, indeed, all the people of the world.

Now I want to quote from the testimony of Mr. Farish given here the day before yesterday. When he was describing to the committee the arrangements which have been made to settle this difficulty arising from the fact that the United States is now engaged in a war with the government which controls I. G., Mr. Farish said—I am quoting<sup>2</sup>.

I. G.'s representatives agreed to this only on condition that their financial return would not be less than under the old arrangement. Since there was no possible method of immediately appraising the financial outcome of this trade, we agreed to a future readjustment which would work out the same financial result as the old arrangement, if it should appear at any time that the trade had been inequitable.

Inasmuch as you have taken over some 2,000 patents from I. G., and by the testimony of Mr. Farish you have agreed with I. G. to make a future adjustment with respect to that matter, I want to ask you who owns these 2,000 patents, I. G. or Standard?

Mr. HOWARD. Is that question directed at me, Senator?

<sup>1</sup> April 2, 1942.

<sup>2</sup> Supra, p. 4375.

Senator O'MAHONEY. Oh, yes, Mr. Howard; you are the patent expert.

Mr. HOWARD. I don't think there is any question, Senator, that we own those 2,000 patents.

Senator O'MAHONEY. Will you own them after the war?

Mr. HOWARD. Yes, sir; we will.

The CHAIRMAN. Were they given to you in consideration of that \$30,000,000 you spent for the original patents?

Mr. HOWARD. In consideration of that, we acquired a three-eighths interest in most of the processes relating to the oil-chemical field, and an 80 percent interest in the other processes. To accomplish this particular rearrangement in 1939 we also surrendered the three-eighths interest we had in the countries outside of England, France, and the United States.

The CHAIRMAN. Is there any equitable arrangement which has to be met after the war with regard to these 2,000 patents?

Mr. HOWARD. The only arrangement which has to be met, Senator, is a simple matter of money payments. The I. G. could claim after the war, if the contracts were still running, an accounting, and say, "You made so-and-so much money out of these patents in these three countries. We made so-and-so much in the other countries. Under the original contract which you traded us out of in 1939 we would be entitled to a greater sum than we got. That trade you made with us in 1939 wasn't fair and you have to pay us so-and-so much money."

That is the position that the I. G. were in, and it can't be helped. That claim cannot be made during the war for obvious reasons, and if it were made it would be subject to the control of the Alien Property Custodian. If made after the war, Senator, I don't know what the facts would be as to it.

Of course, you realize, gentlemen, that under the consent decree<sup>1</sup> which we have just accepted we have no right to do anything of that kind. The contract is set aside and all future observance of it is restrained.

The CHAIRMAN. I just wanted to be sure that the Standard felt that that decree was really in force.

Mr. HOWARD. We certainly do, Senator.

The CHAIRMAN. The committee will recess until——

Senator O'MAHONEY (interposing). May I just finish this matter, Mr. Chairman? I had not quite concluded and I hope to make it brief, because I want the full picture to be presented before the recess.

This, of course, takes us back to the *modus vivendi*; that is to say, to the method of getting along by the two partners during the war. Here was your letter, Mr. Howard:<sup>2</sup>

Pursuant to these arrangements, I was able to keep my appointments in Holland, where I had 3 days of discussion with the representatives of the I. G. They delivered to me assignments of some 2,000 foreign patents, and we did our best to work out complete plans for a *modus vivendi* which would operate through the term of the war, whether or not the United States came in.

Now, those are your words.

Mr. HOWARD. Yes, Senator.

<sup>1</sup> See Exhibit No. 440, appendix, p. 4677.

<sup>2</sup> Exhibit No. 368, appendix, p. 4584, at p. 4585.

Senator O'MAHONEY. In other words, you did your best to work out an arrangement by which I. G., controlled by Hitler, and Standard would get along together, live together, whether or not the United States came in.

Mr. HOWARD. No, sir; live separately, Senator.

Senator O'MAHONEY. Well, *modus vivendi*—I will withdraw the "together"; to get along. Let's drop the proposition.

Mr. HOWARD. As I pointed out, Senator, unfortunately whatever the sentiments of parties may be, war does not abrogate contracts of this kind. It only suspends them. Each party is, therefore, left with the obligation of finding some way to live and conduct his own business during the period in which his contract is suspended.

Senator O'MAHONEY. Certainly. Please understand I am not making any charges of moral turpitude here. This is merely a question of fact so that we may understand and the country may understand the effects of cartel arrangements. Now this is what I want to come to. Bear this in mind: We are not talking now about 1938 or of 1939. We are talking now about 1941, and I find that on January 20, 1941, Mr. Fisher, manager of the Standard Oil Development Co., wrote this letter:<sup>1</sup>

Naturally, under the present war conditions, it is physically impossible for us to reach some markets that properly belong to us, for example, occupied France, and conversely, it is impossible for the I. G. to reach certain other markets. Therefore, there always exists the possibility of making some temporary arrangement with the I. G. if it is to our mutual advantage to do so. It should be noted that we cannot presume inability of the I. G. to deliver. It is, therefore, necessary to refer South American and Japanese customers to the I. G.

As recently as January 1941, because of this cartel arrangement, a Standard Development Co. official was saying that it was necessary to refer South American and Japanese customers to the I. G. In other words, is it not true that as late as January 1941, you regarded it as your obligation under this cartel arrangement to refer customers in South America and in Japan to I. G.?

Mr. HOWARD. Well, Senator, it was not any cartel or trade arrangement which created that necessity. It was the simple fact that we did not own the patents in the countries in question and the I. G. did own them. Had we sent the product in question to those countries, we could have been sued under the patents in those countries which belonged to I. G. There was no way for us to help that situation.

Senator O'MAHONEY. Don't you see where you put yourself, Mr. Howard? Your *modus vivendi* letter is dated October 12, 1939,<sup>2</sup> and Mr. Fisher's letter is dated January 1941, and now in explaining the letter of 1941, you tell this committee that the patents don't belong to you.

Mr. HOWARD. The patents in the countries in question, Senator. The trade of 1939 was a trade under which, instead of paying the I. G. in cash for the interest in their patents, in England, France, and the United States, we traded them the interest that we had in those same patents in the other countries of the world.

Senator O'MAHONEY. So now we come to this phase of the situation, that it is so complicated that while you attempt, so far as the United

<sup>1</sup> Exhibit No. 429, appendix, p. 4661.

<sup>2</sup> Exhibit No. 368, appendix, p. 4584.

States is concerned, to adopt a particular kind of policy, you must adopt an altogether different policy with respect to South America, although South America is bound to this country by the closest ties in the World War. Isn't that a fact? You are following a different policy in South America from that which you are following in the United States.

Mr. HOWARD. Senator, we had the choice of attempting to buy for cash from the Germans in 1939 their patent rights throughout the world or trying to trade for them. We couldn't afford to speculate by purchasing them, and we therefore traded for them, and when we traded we had to give up something, Senator.

Senator O'MAHONEY. That is right. Your difficulty, Mr. Howard, proceeds from the fact that you are bound by two loyalties: First, you are bound by the loyalty to I. G. Farben and the world cartel; and, secondly, you are bound by your loyalty to the United States and its world policy. Now, I know that you are going to choose the latter loyalty, but let's not cloud the issue. Let's make the issue clear to the people.

Let me quote just one other sentence—

Mr. HOWARD. Senator, I am sorry to say I don't agree with that conclusion at all, though I should like to agree with you.

Senator O'MAHONEY. Please explain it. I don't want you to agree with my conclusions. Let's get your slant.

Mr. HOWARD. The interpretation that I place upon your statement is that if I buy from a foreigner a patent right for three countries and don't buy it for three other countries, that I have therefore created a condition under which my loyalty to the United States conflicts with the purchase I have just made. I don't agree with that at all.

Senator O'MAHONEY. Now, Mr. Howard, you introduce the fundamental difficulty in this whole business. It is not at all correct to say that this is analogous to the purchase by one citizen of the United States from a foreigner. This is more than that. This is an agreement between the largest industrial organization in the world, upon the one hand, and the large German chemical trust upon the other. It is not at all analogous to the relationships that exist between individual citizens. You can't be judged by that standard, in spite of the fact—

Mr. HOWARD (interposing). I realize we are not. If we were judged by that standard, certainly we wouldn't be before your committee.

Senator O'MAHONEY. Absolutely; that is right. There is no question about it. Now, let me read this.

Mr. FULTON. I think another difference, Mr. Howard, was that they had patents which you traded to them, and, in effect, it wasn't a simple matter involving German patents, but trading yourself out of the right to deal with your own patents in South America.

Mr. HOWARD. That is correct, Mr. Fulton; we gave up some of our own patents as well as our interest in their patents in this trade.

Senator O'MAHONEY. I notice in Mr. Arnold's statement, this quotation. He introduces a cable from Yokohama to New York, September 11, 1939, which states:<sup>1</sup>

Also, as we fear United States Government in near future may have grounds for action unfavorable to American-Japanese trade, we consider timely for us

<sup>1</sup> Supra, p. 4344, and Exhibit No. 436, appendix, p. 4675.

to organize with Japanese partners whose influence would be valuable later toward our reestablishment after any interruptions in our trade.

Now I interpret that phrase "any interruptions of trade" as a euphemism meaning the present war.

Mr. FARISH. May I ask what you are quoting from?

Senator O'MAHONEY. From Mr. Arnold's testimony; from a cable from Yokohama.

Mr. FARISH. That was discussed yesterday and explained. That cable came from a Standard Oil representative in Yokohama, suggesting that it was opportune to make some arrangement. That was turned down.

Senator O'MAHONEY. My reason for citing it is to illustrate the difficulty which your organization, or any organization of this kind which has grown to such tremendous size, faces when it is dealing with the primary interests of the country to which it owes its loyalty.

Mr. FARISH. I understand what you are driving at, but what I want to point out is that it isn't our kind of business, or our company in this thing. Anybody engaged in international trade has the same problems of dealing with local companies everywhere.

Senator O'MAHONEY. Quite.

The CHAIRMAN. The committee will recess until 2 o'clock, when we will proceed.

(Whereupon, at 12:30 p. m., the committee recessed until 2 p. m. of the same day.)

#### AFTERNOON SESSION

The hearing was resumed at 2:56 p. m., Senator Truman, the chairman, presiding.

The CHAIRMAN. The committee will come to order. Mr. Fulton had a question or two that he wanted to ask Mr. Howard, and then as soon as that is done, I am going to ask Mr. Farish to complete his statement, and then we will ask questions after it is over.

Mr. FULTON. Mr. Howard, we were discussing earlier in the morning this question of the licenses and the way in which they operate. I believe we had covered to the extent of indicating that the licenses had been set up in such a way that the licensees would be restricted to high-cost specialty products. That was the first thing; was it not?

Mr. HOWARD. That was the stop-gap license.

Mr. FULTON. Yes. Now, at that time the licensee will be obligated to give to Standard their improvements; that is, to give the right to use them, but not the right to license them.

Mr. HOWARD. That is correct. In return for which they also got a right without further royalties to any improvements that Standard itself might make.

Mr. FULTON. But not to the improvements which other companies manufacturing under other licenses might make.

Mr. HOWARD. They would have to exchange those directly with the other companies if they wished to get the cross-licenses for that.

Mr. FULTON. And in order to do that they presumably either would have to give up some right of their own, if they had one the other company wanted, or would have to pay a royalty.

Mr. HOWARD. They would have to exchange their own rights or else pay for them, one of the two; yes, sir.



Mr. FULTON. Well, what I was coming to was, the effect of that stop-gap arrangement put Standard in a position where what was originally characterized as a difficult patent structure to maintain would become a good patent structure.

Mr. HOWARD. No. You see, Mr. Fulton, we acquired no right to sue under these licensees' patents at all. It didn't in any respect improve our patent position. The only thing we acquired was increased operating rights for ourselves for which we were willing to give back to all our licensees increased operating rights from us, that is, our improvements for their improvements.

Mr. FULTON. What I meant was, the effect would be that you would have a right to operate under any and all terms known to anyone. In other words, you would have the best possible operating situation at the end of that stop-gap period, because you would have the rights of all these improvements of all the companies, whereas their rights would be limited only to such improvements as they made themselves or as they could acquire—as they would get from you.

Mr. HOWARD. Except to the extent that they voluntarily wished to exchange licenses with one another, which is quite a normal procedure, Mr. Fulton.

Mr. FULTON. But that meant they would have something to exchange.

Mr. HOWARD. Yes, sir.

Mr. FULTON. Now, in addition, at the end of that stop-gap period where you would have the right to go ahead, they wouldn't have any right as such to compel the lowering of the royalties, would they? In other words, you would have their improvements and they would have a stop-gap license that wouldn't be any good for extended quantity in commercial production.

Mr. HOWARD. As I remember, they had a right to disclaim the license under all except three patents, Mr. Fulton—I believe that is correct—at any time they wanted to.

Mr. FULTON. But if they disclaimed the license and if the license was any good in the first place, they would not be able to proceed except with danger of infringement suit.

Mr. HOWARD. Well, if they wished to continue to use our patents, they naturally would have to hold a license or else be infringing.

Mr. FULTON. That isn't my point. As a result of this stop-gap licensing arrangement, you would have obtained their improvements and would be ready to go ahead with the best possible commercial development and they would be in the position where they wouldn't have the improvements of other licenses unless they could privately arrange for them, and where they wouldn't have the ability to go ahead commercially unless they would renegotiate their licenses with you.

Mr. HOWARD. Well, they would have a right to go ahead commercially on the only thing they were commercially interested in.

Mr. FULTON. But I was talking about the commercial development of large quantity production.

Mr. HOWARD. Well, it was understood by all of us, Mr. Fulton, that the effort was to try to devise during the term of the stop-gap license some means for going ahead cooperatively on the larger development.

Mr. FULTON. But they would be in the position where without any commitment from you, they would have to be able to negotiate a new arrangement with you, isn't that right?

Mr. HOWARD. I think on both sides there was a certain element of good faith necessarily involved in the contracts.

Mr. FULTON. Well, but I mean isn't it the point that you didn't need to renegotiate because you would have the improvement? They would have to renegotiate because they wouldn't have a license on terms that they could use for quantity production.

Mr. HOWARD. No, sir; I think the vulnerable spot in the license, from our standpoint, was that we gave them a right to disclaim all patents but three at any time they liked, so that they could have continued to hold—

Mr. FULTON (interposing). But that only means that if your patents weren't any good in the first place, they could still say so, Isn't that the effect of that right of disclaimer?

Mr. HOWARD. Well, by disclaiming the license under all patents but three, they could have continued to get our improvement obligation running to them without having to pay any royalty whatever, if they didn't like to, on a number of patents included in the original plan, if they assumed that the patents couldn't be sustained.

Mr. FULTON. Yes; but that only puts them back generally where they were when they started, except for the extent that you had made some improvements, if you had made any, and you weren't in the manufacture of rubber at the time.

Mr. HOWARD. Well, immediately at the time—I am just looking at the sheet here—we were beginning to spend money on an enormous scale in making the improvements.

Mr. FULTON. But is not that correct? You would have had their improvements and they would have had an obligation to renegotiate with you if they could, or failing that, to disclaim your patents and stand suit?

Mr. HOWARD. Yes, sir; I think that is right, Mr. Fulton.

Mr. FULTON. Well, now, you said with respect to this joint agency that you were referring to, that your purpose there was simply to aid the defense program. Am I correct in that?

Mr. HOWARD. Yes; that is right.

Mr. FULTON. And you are sure that you didn't have as part of that purpose the creation of a joint agency along the line that you had originally conceived as being the way to retain control of the rubber?

Mr. HOWARD. Well, naturally, Mr. Fulton, we were trying to find a road of utilizing this new process consistent with the national interest, under which we could also get a fair return from it ourselves. It would be silly for me to say that we were trying to give away the patents. We were trying to find the best road consistent with the national interests for making a fair return on the patents ourselves.

Mr. FULTON. And isn't it a fact that long before the discussions of the national defense aspect, you had concluded that such a vehicle should exist, and should exist even in the company, Jasco—this joint selling agency arrangement?

Mr. HOWARD. From our first study of the Buna-S problem in the United States, we assumed that a joint facility of some kind would have to be done to carry it out efficiently and with any hope of success. We didn't see how it could ever compete against natural rubber unless all the interested parties pitched in together and tried to make it go as a cooperative matter.

Mr. FULTON. My question was, had you not before discussing that, concluded that from your company's standpoint it was desirable to get it into Jasco as controlling the sales outlet?

Mr. HOWARD. No; I don't think there was any plan to have Jasco engaged in sales. Jasco wished to work out some control over sales of specialty rubber, by Standard Oil of New Jersey, which frankly expected to keep the sale of specialty rubber to itself.

Senator O'MAHONEY. Mr. Chairman, it is necessary for me to go to a meeting of the Committee on Appropriations, but before leaving I wanted to say two things: In the first place, I feel that it is of great importance that this hearing and all matters pertaining to it shall be kept as far as possible on a purely factual basis.

The CHAIRMAN. That is the intention of the chairman of the committee.

Senator O'MAHONEY. Certainly. This morning, in the course of my questioning, I took occasion to refer to a report published in the New York Times this morning. Upon rereading that article, I feel that in all probability my characterization of that as a front-page editorial was scarcely justified, and I desire to withdraw the statement. I think that the full article displays an intention upon the part of the reporter to cover the whole story factually.

Now, Mr. Chairman, when we recessed this morning, I was questioning Mr. Howard with respect to the status of the 2,000 patents which were obtained by Standard from I. G. and to which reference was made in the so-called *modus vivendi* letter of Mr. Howard of October 12, 1939.<sup>1</sup> It will be recalled that these patents had been assigned to Standard before that time. I was seeking to determine the actual title to these patents, and as I understood the testimony of Mr. Howard, it was that these patents actually now belong to Standard and not to I. G. This is an important matter.

Mr. FARISH. Three countries: The United States, Great Britain, and the French Empire—the British and French Empires.

Senator O'MAHONEY. In the United States, Great Britain, and the British and the French Empires, they belong now to Standard, not elsewhere. All right, with that correction.

Mr. HOWARD. I am sorry. The patents relating to the oil business throughout the world, except Germany, belong to Standard.

Senator O'MAHONEY. How about these chemical patents?

Mr. HOWARD. As to the chemical patents, Mr. Farish's answer is correct.

Senator O'MAHONEY. They belong to Standard in these three countries?

Mr. HOWARD. That is right.

Senator O'MAHONEY. No question about that at all?

Mr. HOWARD. Not that I know, Senator.

<sup>1</sup> Exhibit No. 363, appendix, p. 4584.

Senator O'MAHONEY. Now, I have before me a photostatic copy of a letter on the letterhead of the Standard Oil Development Co., legal department, W. E. Currie, vice president. I should like to read it into the record, Mr. Chairman. It is dated September 11, 1940.

The CHAIRMAN. Proceed.

Senator O'MAHONEY. That is almost a year after the *modus vivendi* agreement, in which there is reference to the assignment to Standard of these patents—these 2,000 patents for this company. Mr. Currie writes to Dr. H. Beller, Chemnyco, Inc., 521 Fifth Avenue, New York, N. Y. I understand that Chemnyco, Inc., is the agent of I. G. (reading Exhibit No. 463):

DEAR DR. BELLER: On June 26, 1940, we wrote Dr. Hochschwender with reference to the possibility of arranging with the I. G. for a license under the above-mentioned United States patent, which comes under the AD class of the four-party agreement. On July 3 you replied advising that our suggestion in this connection had been forwarded to the I. G. The most suitable compound covered by the patent in our opinion is lauryl amine. We have secured good results by using this as an additive for asphalt to be applied to wet aggregate. Du Pont has supplied us with lauryl amine in the quantities which we have required so far. However, if we proceed with a large scale development of this use of lauryl amine, it will be necessary to advise du Pont so that it may make arrangements for enlarging its capacity in order to produce this compound. The patent in question is one of those which has been assigned to us. Our dealings with du Pont would be facilitated if we could advise them that we have the exclusive right to use the invention covered by the patent. We wish, so far as we can legally do so, to secure exclusive use of du Pont's output of lauryl amine as an asphalt additive. If you think proper, would you be kind enough to cable the I. G. in an endeavor to secure an answer to the proposal which we made in our letter of June 26.

Very truly yours,

W. E. CURRIE.

Now, the question, on the basis of this letter, is that if as a matter of fact, these 2,000 patents have become the property of Standard so far as the United States is concerned, how does it come that in September 1940, Mr. Currie was writing to the agent of I. G. with reference to a patent which was assigned prior to the *modus vivendi* statement, asking for permission to use the invention covered by the patent? Why did you have to ask for permission to use the invention under a patent which had now become your property?

Mr. Chairman, I offer the letter to be inserted in the record at this point. I hope that there may be a copy of it kept.

(The letter referred to was marked "Exhibit No. 463" and appears in full in the text above.)

The CHAIRMAN. The copy will be returned to you, Senator, as soon as it is copied into the record.

Mr. HOWARD. On May 8, 1940, Standard's patent attorney wrote the New York representative of the I. G. saying: First, that he had noted the issuance of United States Patent No. 2,191,295 assigned to I. G.; second, that he understood it covered a good asphalt additive; third, that he understood that additives for petroleum products such as this patent were a class of inventions which I. G. and Standard had formerly made a practice of negotiating separate agreements on. He proposed a separate agreement in the form of a license, and as an alternative asked I. G. also to consider the possible desirability of having the patent assigned to Standard Oil Development Co.,

"subject to reversion to I. G. under suitable conditions," as a means of assisting Standard in working out an arrangement with du Pont. The suggested reversion was contemplated as a contingency which might arise out of the working out of this particular du Pont deal in the event the financial return to I. G. if Standard were to make this deal with du Pont, should not be satisfactory. The deal did not go through, but in the meantime an assignment had been made.

That is, the du Pont deal did not go through, but in the meantime an assignment had been made.

To bring that picture up to date:

On January 5, 1942, Armour & Co. made an inquiry concerning this patent—which had now been assigned—and were told: "The first step for you to take if you wish to arrange for a license under the patent would be to make application to the Alien Property Division of the Department of Justice."<sup>1</sup>

Senator O'MAHONEY. Now, Mr. Currie's letter refers to it as one of the patents which had been assigned. Are we to understand that that was a mistake and it actually was not one of them?

Mr. HOWARD. As of the time when this matter was raised, Mr. Currie did not know of any such assignment and raised the question of either a license or an assignment to help him make a particular deal.

Senator O'MAHONEY. Now we are talking about different things.

The CHAIRMAN. Was it one of the 2,000?

Mr. HOWARD. So far as I know it was not. My counsel says that is correct, Senator; it was not one of the 2,000.

Senator O'MAHONEY. Well, you are contradicting, then, this specific statement in Mr. Currie's letter: "The patent in question is one of those which has been assigned to us."<sup>2</sup> Now, do you want us to understand—

Mr. HOWARD (interposing). What is the date of the letter, please?

Senator O'MAHONEY. September 11, 1940.

Mr. HOWARD. Apparently, following May 8, 1940, when Mr. Currie, the gentleman in question, wrote I. G. proposing these alternative deals, either a license or an assignment subject to reversion. I. G. did assign. Mr. Currie is quite correct in saying that as of this date which I mention they did have an assignment; but that was not an assignment under The Hague memorandum; it was an assignment under a completely different and independent agreement.

Senator O'MAHONEY. You want us to understand, therefore, that the assignment referred to in the modus vivendi memorandum referred to certain kinds of patents, but that there was at least one other patent which was not covered in it.

Mr. HOWARD. Oh, yes. As Mr. Currie states in this letter, the original 1929 agreement had in it a special clause dealing with chemicals of the class of additives for petroleum, and there was no possible way the parties could find then to say exactly what they would do about such patents, and that is what Mr. Currie meant when he says that it had been the practice since 1929 to try to arrive at a separate agreement in each case of any such patents.

<sup>1</sup> Mr. Howard subsequently submitted two letters from Mr. W. E. Currie to Dr. K. Hochschwinder dated May 8 and June 26, 1940, which appear in the appendix on pp. 4802-4803.

<sup>2</sup> See Exhibit No. 463, supra, p. 4452.

Senator O'MAHONEY. Now, then, in this explanation which you have just given, you have stated that the assignment was made subject to reversion under suitable conditions. Now, would it be correct to infer that that meant that the reversion would take place after the war?

Mr. HOWARD. Absolutely incorrect, Senator. I asked Mr. Currie what he meant by that, and he said that he meant that if the financial return to I. G. from the license that Mr. Currie expected to negotiate with du Pont was unsatisfactory to I. G., then he would be willing to give them back the patent. In other words, just a sort of normal minimum royalty provision.

Senator O'MAHONEY. Now, you asked Mr. Currie what he meant by that phrase, and he told you that. Was that an oral explanation?

Mr. HOWARD. That was an explanation given by my counsel to me. I am sorry; I shouldn't have said I myself asked. The counsel asked Mr. Currie and not myself.

Senator O'MAHONEY. I was not talking about the individuals, but as to whether or not this was an oral explanation or whether there is a written document defining the terms of the reversion.

Mr. HOWARD. The deal did not go through, Senator, but was abandoned for some reason. I assume there is no written document. Is that correct, Mr. Loofbourow?

Mr. LOOFBOUROW. Yes.

Senator O'MAHONEY. Are there any other patents subject to reversion?

Mr. HOWARD. Not that I know of, Senator. I should like to point out this, that many of the patents assigned had been divided functionally by the 1929 agreement; that is, we were entitled to exclusive rights under them in certain fields, and the I. G. were entitled to certain rights, and that created a situation that might eventually call for a demand on the part of I. G. that a patent coming within that category had been assigned by error or that under the agreement they were entitled to hold title and we would keep the license rather than we hold title and they get the license.

Senator O'MAHONEY. The situation, then, is that there were two classes of patents, those which were assigned and of which you had full control, and those which had not been assigned up to that time, which may have been assigned afterward, but under which it became necessary for you as late as 1940 to ask the permission of I. G. to exploit in this country.

Mr. HOWARD. The patent you refer to, Senator, was one to which we had no right to assignment, and if we received an assignment at any time it would be subject only to agreement made at that time as was proposed by Mr. Currie at that date.

Senator O'MAHONEY. In other words, you had to get the permission of I. G. as late as 1940 for the development of this particular patent?

Mr. HOWARD. Yes, sir; that is correct.

Senator O'MAHONEY. Thank you very much.

Mr. Chairman, I will return a little bit later, if I may.

The CHAIRMAN. Senator Kilgore, you had some questions?

Senator KILGORE. Mr. Chairman, before we leave this question of patents, I just want to clarify something in my mind based upon some testimony by Mr. Howard this morning and also some statements by Mr. Farish. I understood you to say this morning Mr. Howard, that

these patents cost Standard \$30,000,000, and you were discussing at that time the question of royalties and a fair return on them. Was that a cash investment or otherwise, or was it an exchange of patents?

Mr. HOWARD. No, sir; that was paid in the form of stock of Standard Oil Co. of New Jersey, and the figure I gave you was based on the book value of the stock.

Senator KILGORE. The book value at the time the transfer was made. When was that deal?

Mr. HOWARD. 1929.

Senator KILGORE. 1929?

Mr. HOWARD. November.

Senator KILGORE. I gained the impression, and I may have been wrong, from your statement this morning, that the principal question of value in this whole matter really was these rubber patents. Is that a fact? Were the others negligible?

Mr. FARISIL. No, no.

Mr. HOWARD. At the time we made the purchase, we believed that the principal earning power would come from the hydrogenation process. As a matter of fact, that has been true to date. From the hydrogenation patents we have gotten a great many millions of dollars of revenue, but not nearly enough to extinguish the purchase price. The rubber patents had no earning power at all until 1939.

Senator KILGORE. And by that transaction, of course, I. G. gained a stock interest in Standard of New Jersey?

Mr. HOWARD. That is correct.

Senator KILGORE. In exchange for it. Now, that was made in 1929. In 1939 was when you entered into your modus vivendi agreement. Up to that time had they not furnished you with the working knowledge to make those patents that had been turned over to you workable during that 10-year period?

Mr. HOWARD. Oh, yes. We had been constantly in touch with them concerning all the processes that we had any use for in the United States and that we were able to put to any practical purpose here.

Senator KILGORE. Well, but there were a lot of them evidently, particularly pertaining to rubber, that you hadn't been given the "know how" on, to use the slang expression, up until 1939. Is that right?

Mr. HOWARD. So far as I remember, the rubber patents are the principal ones which now have a value and on which there was no commercial value until 1939.

Senator KILGORE. In other words, they had just merely assigned over to you the title to these formulae which were on record in our Patent Office up until that time and had given you nothing further on those patents.

Mr. HOWARD. No, sir. When we first acquired the patents in 1930, we went through the process of manufacture with them very carefully and we have in our files, of course, the flow sheets of the actual processes being used to manufacture buna rubber in 1931 and 1932 and perhaps up until 1933. At that time there was adopted a division of labor, you might call it, between the parties. Our labor function was to try to develop under our own direction but partly with their money in the United States a process of making the necessary raw material, butadiene, from oil, cheaply enough to give the product some hope of commercial success here. From 1931 on, we were engaged in that task,

spending our money on it, and their money also, in the United States, and in the meantime they were carrying the burden of the experimental development and research on the actual polymerization of the rubber in Germany.

Senator KILGORE. Now, that brings up this: In 1938, according to this testimony, why was it necessary that I. G. had to come into the United States, which they refused to do because their government objected, in order to make the actual rubber production possible?

Mr. HOWARD. Senator Kilgore, the reason was that under the 1929 agreement the patents were assigned to an American corporation, Jasco, subject to the control of the originator of the patents as to the exploitation of those patents in the United States, and subject to a 25-percent overriding royalty to him. That meant that while the patents were owned by an American corporation in which we were an equal shareholder with the Germans, the control of what to do about those patents was in the hands of the Germans, who had a five-eighths net interest, we having only a three-eighths net interest in the patents. We therefore could not do anything in the way of either licensing or using the patents ourselves or creating any industry here under them without the consent of the Germans. That was the trade.

Senator KILGORE. Then it was practically what you might call a one-way street agreement in which Germany could go ahead and produce at will while we could not produce without Germany's consent. Isn't that about correct, then?

Mr. HOWARD. It was a purchase of a minority interest; that is all it was, Senator.

Senator KILGORE. I see. Then it was not an outright purchase of patents until 1939.

Mr. HOWARD. That is correct. It was a purchase of a three-eighths interest from 1929 to 1939, and a trade for the remaining five-eighths interest made in 1939.

Senator KILGORE. In which they gained \$30,000,000 interest in Standard of New Jersey and still controlled their patents in the United States.

Mr. HOWARD. Oh, no, sir. The 1929 agreement gave us an 80-percent interest, Senator, and full control throughout the world except Germany, of all their processes in the oil industry; and that, as I said a moment ago, was the item to which we attached the principal element of value in the 1929 trade. The rubber patents at that time, if we had had to value them, Senator, I don't believe we could have estimated a value of half a million dollars for them. It was entirely speculative.

Senator KILGORE. Then you didn't classify the production of rubber from oil necessarily as an oil industry. That was classified as another kind of industry.

Mr. HOWARD. Yes, sir. That was classified as another kind of industry. That is what we called the border-line industry, the production of a chemical product from an oil raw material, a field which they might claim was their business and which we might also claim was our business.

Senator KILGORE. And, of course, from that agreement we naturally draw the inference that Standard's chief interest in the 1929 agreement was the control of the oil and its byproduct situation



throughout the world, and I. G.'s interest of course was the control and centralization of synthetic chemicals such as rubber, and it was more of a control agreement rather than a production agreement of any kind.

Mr. HOWARD. No, sir; we didn't so regard it. We regarded that agreement as an agreement for a patent purchase and for cooperation in research. To obtain that cooperation in research we in effect had to say to the Germans, "We won't use the help you are giving us in the oil industry where we know the business and can use that help in order to go off on a tangent and compete with you in the chemical industry, in which we have never been and have no intention of being."

Senator KILGORE. That is what I am getting at. Then it was really an agreement as to competition.

Mr. HOWARD. No, Senator; it was merely a limitation on our use of the patents and information we acquired from them under the agreement for purposes of competing with them.

Mr. FULTON. And on your own use of your own patents in their field.

Mr. HOWARD. As a part of this arrangement we did agree that we would sell them at a price to be determined at the time, any inventions in the chemical business not related to the oil business, that we might acquire. That was nothing but an option.

Mr. FULTON. Did they give a kindred agreement?

Mr. HOWARD. Everything they had on oil.

Mr. FULTON. Anything as to futures in the nature of options?

Mr. HOWARD. Everything they got on oil up to 1947 we acquired from them, from the time we made the agreement; everything for the next 17 years they agreed to give us.

Senator KILGORE. But the agreement basically was not for production and exploitation but for experimentation and control of basic patents.

Mr. HOWARD. The agreement was a purchase of patents coupled with an agreement to cooperatively develop them and to share any patents resulting from that cooperation in a fair way. At least we thought that was a fair way, Senator.

Senator KILGORE. All right.

Mr. FULTON. That reference I made, Mr. Howard—

Senator CONNALLY (interposing). May I get in here?

The CHAIRMAN. Yes, Senator, whenever you want to ask a question you are at liberty.

Senator CONNALLY. You said something about until 1939 it was not commercially important. Why was that?

Mr. HOWARD. Because of high costs, Senator.

Senator CONNALLY. That is what I had in mind. In other words, up until the war emergency, you could buy raw rubber, sure enough rubber, cheaper than you could this synthetic, is that correct?

Mr. HOWARD. Yes, sir. We felt that anyone who tried to develop synthetic rubber here on a large scale for competition with natural rubber would have to be prepared to meet a market of at least 5 cents a pound. If he wasn't prepared to meet such a market, he might be ruined financially.

Senator CONNALLY. Of course, the war has changed all that now because of the taking over of the Dutch Indies where the rubber

grows of its own accord, and we have got to make some artificial rubber, and therefore, the necessity for the establishment of these plants is all the keener; is that right?

Mr. HOWARD. Yes, sir.

Senator CONNALLY. Have you any estimates as to what the United States Government, as such, has spent for rubber over the years; have you any statistics on that—how much a year? I don't mean publicly?

Mr. HOWARD. I can tell you it is the largest single item of import in the United States, and has been for a great many years, Senator—some hundreds of millions of dollars per year.

Senator CONNALLY. These two kinds of rubber you are talking about—buna and butyl; did you experiment in research as to both of them?

Mr. HOWARD. Yes, sir.

Senator CONNALLY. You can answer that briefly. I don't want to go back—this probably was developed while I was absent; I couldn't be here this morning; I had to go to another committee. You did conduct research and investigations in both kinds of rubber?

Mr. HOWARD. That is correct, Senator.

Senator CONNALLY. Under the same general plan that you have outlined here for it; is that right?

Mr. HOWARD. That is correct, Senator.

Senator CONNALLY. What happened in the Indies? Did Standard own any oil properties in the Dutch East Indies?

Mr. HOWARD. I will let Mr. Farish answer.

Senator CONNALLY. All right, Mr. Farish. I am not talking about now. I am talking about some time ago.

Mr. FARISH. Yes, sir.

Senator CONNALLY. What happened to them?

Mr. FARISH. We owned in the Dutch East Indies a 50-percent interest in a company known as the Standard Vacuum Co.

Senator CONNALLY. That is the same Vacuum Co. that is over here in New York?

Mr. FARISH. No. That is a company whose interest is all in the Far East and Australia and South Africa. That company owned production in Sumatra and several of the other islands—about forty-five or fifty thousand barrels a day—and a refinery in Sumatra. That is what you mean, I take it.

Senator CONNALLY. Yes; yes. What happened to them? Did the Dutch destroy them like they did their own properties or not?

Mr. FARISH. Well, of course, the plans were laid long before the Japs got there, but the properties were thoroughly destroyed by our own forces under the direction of the Dutch authorities. There were four Americans in charge of that operation, and, as I understand the plans—and we have gotten cables stating they were carried out in full—they were to destroy the refinery, the pipe line as much as they could, pump stations, and the wells. The plan for destroying the wells was to leave the tubing in the wells and pump them full of cement; so the cables came back that the properties were thoroughly destroyed according to plan, so I presume they are all destroyed.

Senator CONNALLY. The reason I asked you that, this morning the Foreign Relations Committee in executive session—I can't reveal the details—had Admiral Hart before it, and he was in command out in

that area, and he told us a good deal about what the Dutch had done to their own properties. I just wondered if our people had done the same thing.

Mr. FARISH. Well, our properties are thoroughly and completely destroyed in this scorched-earth policy of leaving nothing of any value. The four Americans in charge got to Java and have since reached Australia, as I understand, and have joined General MacArthur's army, so that is the wind-up of our business in the Dutch East Indies.

Senator CONNALLY. That is all.

The CHAIRMAN. The chairman told Mr. Farish awhile ago that after a few preliminary questions which some of the Senators had to ask—and some of them had to leave—that he would be allowed to finish his statement—I think he has about seven or eight pages yet to read—and then the questions would be asked. That is the ruling of the Chair, so proceed, Mr. Farish.

Mr. FARISH. Thank you.

Senator CONNALLY. Is this a serial? Is your testimony sort of a serial?

Mr. FARISH. Right. "Continued in our next."

The CHAIRMAN. We are trying to get through, Senator Connally. I thought I would let him read this and then ask the questions.

Senator CONNALLY. I think it would be well to let him say his piece.

Mr. FARISH. I will try to hurry through this.

The CHAIRMAN. Take your time. I want you to finish your statement and the questions will be asked after you get through.

Mr. FARISH. We all understand that buna-N, the specialty rubber, was the only product that had commercial possibilities at that time, the rubber companies advising us that it would be impossible to support any production of buna-S, the tire rubber, without considerable Government subsidy. This license offer covered the production of the licensees for their own needs. Any surplus they produced was to be sold to us for resale to the general trade. This plan was prompted by our desire to make this rubber available to every manufacturer of rubber goods. We were at that time uncertain as to the lowest cost method of supplying the general trade. If we secured enough in the way of surplus from the tire companies, this seemed to be the best answer. The value of perbunan, the specialty rubber, at this time was about \$1 a pound. The royalty asked was 7 cents a pound. The rubber companies were advised that this license plan was a stopgap arrangement to permit them to get into immediate production of the specialty rubber. When the market price of this rubber dropped to about 70 cents per pound, the royalty was adjusted on December 31, 1940, to 7 percent of the sales price. At the same time we fixed the royalty to be paid on buna-S, the tire rubber, at 5 percent for the first 100,000 tons to be manufactured in the aggregate by all licensees, 4 percent for the next 100,000, and 3 percent for all over that.<sup>1</sup>

I would also like to add there—Mr. Howard was interrupted this morning before completing his statement—that our proposal to the Rubber Reserve on royalties was no royalty for the first year, 1 per-

<sup>1</sup> Mr. Farish later called attention to Exhibits Nos. 459 and 460, see appendix pp. 4736-4737, which he states: "how that this adjustment of the royalties and release of all restrictions on manufacture or sale of tire rubber were actually agreed to by us in principle on August 1, 1940, and the exact royalty scales proposed on September 10, 1940."

cent for the second year, and 3 percent thereafter. That, however, was still a matter of discussion when the royalty arrangement was made as of December 20, last year, at which time the royalty agreed upon then with all people interested was 1 percent for the duration of the war, or 5 years, whichever was the term, and 2 percent for the next 5 years, no royalty after that.

Now, the status is that there are no royalties involved on any of these questions during the war due to the announcement of the company first on the butyl rubber, and to the consent decree wiping out all royalties.

While Standard was offering licenses to rubber companies, it went right ahead with its own plans for commercial production of buna-N, the specialty type synthetic rubber. By April 1941, Standard had been able to complete construction of a buna-N plant at Baton Rouge, La., having a capacity of 5 tons per day. The capacity has subsequently been increased to 10 tons per day. The cost of the plant was about \$1,000,000. Incidentally, at the request of the Government, this plant was for a period used to produce over 100 tons of buna-S, most of which is now being used by the United States Rubber Co. to manufacture experimental tires for the United States Army and the balance is being allocated to other rubber companies in cooperation with the War Production Board so that these rubber companies will have had advance experience with this type of rubber, when buna-S starts to flow in large quantities from the Government's rubber plants.

I might add also to the record, Senator, that since July 1941 all the production from this plant has been allocated by the Rubber Reserve or the War Production Board; also, all the laboratory samples of butyl that we have been able to produce from our laboratory since last January.

I turn now to the Government's rubber program. Everyone concerned with the national defense angles of synthetic rubber recognized from the beginning that private capital could not provide any real supply. Early in 1939 when Standard first started to bring the synthetic rubber situation to the attention of the Government, it found that there was no agency having the necessary authority and funds to sponsor a Government program, although the Munitions Board was anxious to get something started.

From June 1940 to October 1940, a committee of the Advisory Commission to the Council of National Defense was the Government agency to consider and promote synthetic rubber.

Standard's discussions with the Army and Navy Munitions Board on May 26, 1940, before the Advisory Commission to the Council of National Defense became the Government's rubber agency, is recorded in a company report dated May 29, 1940, which I submit as an exhibit and from which I quote a problem which we presented [reading from Exhibit No. 464]:

The use of butyl rubber for tire purposes has not been tested. We do not have the equipment nor the technical personnel to find out if the material is suitable for tires. Samples of the product have not been submitted to the rubber industry nor has any announcement of the product been made to the rubber industry. It has been considered unwise to discriminate by offering supplies to any one rubber company before supplies of samples are available for the entire industry.

(The document referred to was marked "Exhibit No. 464" and is included in the appendix on p. 4741.)

Mr. FARISH. On May 27, 1940, Colonel Hines wrote Mr. Howard a letter which I submit as an exhibit, and from which I quote [reading from Exhibit No. 165]:

It is realized that you only have a small pilot plant in operation and perhaps your stock of X material—that means butyl—

is very limited; for that reason it may not be possible for you to have all the principal companies run tests to determine the suitability of your X product in the manufacture of tires. If this is the case, I would suggest that you select the company best fitted to give us the results in the shortest possible time due to the gravity of the situation abroad. I realize that in the commercial field you would normally give your product to all reputable manufacturers and not discriminate in favor of any one firm in the development of any of your products.

(The letter referred to was marked "Exhibit No. 465" and is included in the appendix on p. 4742.)

Mr. FARISH. Accordingly, in June 1940, Standard worked out cooperative arrangements with Firestone Tire & Rubber Co., the United States Rubber Co., and later with Acushnet Process Co., General Electric Co., and United Carbon Co. In addition to continuing to supply the Army and Navy with their needs, butyl rubber was also furnished the National Bureau of Standards and two university professors working on defense projects. These various groups and Standard's own laboratories used the entire experimental output of Standard's butyl rubber in experimentation to determine how this new material could be compounded into useful products.<sup>1</sup>

Early efforts to make a butyl rubber tire were discouraging. The first butyl rubber tread vulcanized on a natural rubber carcass separated after running only 17 miles. The rubber companies were from the beginning able to do much better than this with a tire made entirely of butyl rubber. Their first tires ran several hundred miles before going to pieces. Gradually through modifying the manufacturing and compounding procedure it was possible to build butyl rubber tires which gave longer service. At the present time the rubber companies know how to make butyl rubber tires which will last as long as 10,000 miles when used on passenger cars which are operated at less than 35 miles per hour. It required months of work—more than a year—after June 1940 to arrive at this partial solution of the problem. The rubber companies had trouble also in making butyl rubber tire inner tubes. They had trouble adhering the valve

<sup>1</sup> Mr. Farish later supplemented this testimony as follows:

"To show the procedure we used I submit Standard's letter of June 6, 1940, to Firestone and quote from this letter the following:

"This will confirm our discussions of today concerning Butyl rubber as follows:

"We are agreed that Firestone Tire & Rubber Co., and Standard Oil Development Co. should undertake at once full technical cooperation in the utilization of butyl rubber in the manufacture of rubber products (specialty tires)."

"Also, Standard's letter of June 20, 1940, to Firestone, from which letter the following is quoted:

"During our discussion of butyl rubber with you on June 6, I believe you were informed that samples of butyl rubber have been furnished to United States Government departments for purposes relating to national defense. Additional samples will be furnished as required. No mention of these samples was made in my letter confirming our discussion but I am assuming that you will not consider the supplying of samples to Government departments as being contrary to our agreement."

[The documents referred to above appear in the appendix on pp. 4800 and 4803.]

to the tube and also with splicing the tube itself. There is promise that these problems are nearly solved.

The history of the pilot-plant operations from the date when the plant was built in October 1939, through February 1942, shows the tremendous technical difficulties overcome in the dogged determination to make butyl rubber a success regardless of cost.

Let me now turn again to the record to show the committee Standard's participation in the Government program. Continuously, from January 1939, Standard has been in the forefront of those advocating an adequate Government synthetic rubber program to provide tires for American automobiles. In June 1940 a committee of the Advisory Committee to the Council of National Defense became the Government agency to consider and promote synthetic rubber.

I submit, as an exhibit, Standard's letter of June 11, 1940, to Mr. E. R. Stettinius, Jr., of the Advisory Commission, from which I quote [reading from Exhibit No. 466]:

We have made some tentative plans for a set-up which we believe might meet the national problem. Briefly, the principle involved is that the commercial interests concerned should organize a cooperative enterprise for the manufacture of, for example, 20 tons per day of synthetic rubbers of the various types now in demand by the industry for specialty uses and for technical and commercial testing in the tire market. This might involve an immediate capital requirement of the order of \$5,000,000, more or less. This same cooperative group should then undertake by suitable arrangements with the Government the immediate erection, maintenance, and operation of one or more plants to produce something of the order of 300 to 700 tons of synthetic rubber per day to meet the requirements of the country in an emergency. The amount of capital required for this enterprise might be \$50,000,000 or thereabouts.

(The letter referred to was marked "Exhibit No. 466" and is included in the appendix on p. 4743.)

Mr. FARISH. I submit Mr. Stettinius' reply of June 12, 1940, from which I quote [reading from Exhibit No. 467]:

Thank you for the informative analysis of the synthetic rubber situation contained in your letter of June 11, 1940. Your public-spirited attitude is greatly appreciated.

(The letter referred to was marked "Exhibit No. 467" and is included in the appendix on p. 4745.)

Mr. FARISH. In June, July, and August 1940, Standard participated in discussions with the Advisory Commission and rubber companies.

I submit Standard's report of a meeting of the industry with the Advisory Commission on August 8, 1940, from which I quote these conclusions [reading from Exhibit No. 468]:

To provide any substantial amount of synthetic rubber capacity the Government must take some action.

A capacity of 100,000 tons per year is as good a figure as could be named. Synthetic rubber is needed from a defense standpoint.

(The document referred to was marked "Exhibit No. 468" and is included in the appendix on p. 4745.)

Mr. FARISH. I submit as an exhibit an Advisory Commission letter of August 28, 1940, to Standard, from which I quote [reading from Exhibit No. 469]:

In talking with Mr. Schram this morning, there appears no doubt that in these first direct contacts between him and the industry, he secured much additional valuable information. This will be most helpful to him

in assisting the Reconstruction Finance Corporation to crystallize its thoughts with respect to financing.

(The letter referred to was marked "Exhibit No. 469" and is included in the appendix on p. 4746.)

Mr. FARISH. I submit as exhibits Standard's letter of October 7, 1940, and Humble Oil & Refining Co.'s letter of the same date, with which there was submitted a brochure of engineering studies covering butadiene plants at Baton Rouge, La., and Baytown, Tex., and a letter from Mr. W. L. Batt, of the Advisory Commission, thanking Standard for its "splendid cooperation."<sup>1</sup>

(The documents referred to were marked "Exhibits Nos. 470 to 472" and are included in the appendix on pp. 4746-4749.)

Mr. FARISH. I submit an undated memorandum received by Standard on December 5, 1940, from Reconstruction Finance Corporation calling for proposals for the construction of plants having an aggregate annual capacity for the production of 40,000 long tons of synthetic rubber. The proposal calls for Government financing of this 40,000-ton program to the extent of 75 percent of capital requirements, the remaining 25 percent to be financed by private capital. You will note that this is the time at which the Government program was reduced from 100,000 tons to 40,000 tons.

(The memorandum referred to was marked "Exhibit No. 473" and is included in the appendix on p. 4749.)

Mr. FARISH. On January 15, 1941, Standard submitted to the Reconstruction Finance Corporation a complete plan under which it offered to construct a plant for the production of butadiene, to be financed 75 percent by the R. F. C. and 25 percent by Standard. Nothing came of this proposal.

This did not stop Standard from continuing to advocate a Government program. I submit a letter dated February 27, 1941, to Mr. W. L. Clayton, of the Reconstruction Finance Corporation, in which Mr. Clayton, who was then new in the rubber program, was given a complete story of the status of the different synthetic rubbers.

<sup>1</sup> Mr. Farish subsequently submitted a letter written by himself to Mr. Edsel Ford, dated October 11, 1940, which appears in the appendix on p. 4804, and from which he quotes the following at this point:

"1. The rubber supply of the world now is under cartel control, and at times United States has had to pay unreasonably high prices for rubber. The present price is high.

"2. A reasonable supply of synthetic rubber at home would act as a brake on advancement of cartel prices; such supply would tend to stabilize the price of rubber at a reasonable figure.

"3. The art of making and of compounding synthetic rubber should be developed to its maximum because of the above conditions and because it is possible that some day this country will depend largely on synthetic rubber.

"Therefore, it is our opinion, looking at the over-all economy of the United States, that the Government today could well afford either to encourage the building of a reasonable amount of synthetic rubber production, or as an alternative, putting some reasonable tariff on imports of raw rubber that would encourage the commercial development of synthetic rubber. Another form that aid in the commercial development of synthetic rubber might take would be a remittance of the present tax on all tires and this rebate applied to tires made from synthetic rubber. Some practical program could be worked out, either with a tariff or remittance of the present tax. I am sure.

"The real reason for writing you at this time is to suggest that, if you agree with the general principle that development of synthetic rubber should be encouraged, you might be willing to go into the matter further, with the view of lending your help in educating Mr. Jones on the entire subject. Here is a real chance for him, as the new Secretary of Commerce, to make some contribution toward protecting business and industry against a possible shortage of rubber in this country.

"I have the feeling that the oil industry, who, having the raw materials, would be the primary manufacturers of synthetic rubber, is somewhat handicapped in speaking for the general good of the United States as a whole. The automobile industry has not this handicap, and I am sure if you agree with the reasoning that led us to our conclusions that your aid will be most valuable."

(The letter referred to was marked "Exhibit No. 474" and is included in the appendix on p. 4750.)

Mr. FARISH. By March 1941 the Government program had dwindled to a very small figure and Standard was requested to waive all patent royalties and infringement claims arising out of manufacture, use, or sale at cost of small quantities of synthetic tire rubber. I submit a letter from Standard to Mr. W. L. Clayton, of the Federal Loan Agency, dated March 28, 1941, from which I quote [reading from Exhibit No. 475]:

I have discussed with my associates your suggestion that we waive all patent royalties and infringement claims arising out of the manufacture, use, or sale at cost of small quantities (approximately 1,250 tons total) of synthetic tire rubber for experimental purposes under the 1-year program which you are now endeavoring to work out with the tire manufacturers.

You know it is our conviction that the synthetic tire rubber industry is essential to the national defense and an important element in the post-war economy of the country. You also know that for 2 years we have been cooperating with the Army and Navy Munitions Board, the Council of National Defense, and the Reconstruction Finance Corporation in the successive stages of evolution of the governmental program on synthetic rubber. We are therefore committed in advance to the support of your very modest program, and we are glad to evidence our support by agreeing to your suggestion.

We have already been in contact with the National Defense Commission concerning the supply of butadiene in connection with this program.

Please call upon us if you think of any other way in which we can be of service in advancing this matter.

(The letter referred to was marked "Exhibit No. 475" and is included in the appendix on p. 4753.)

Mr. FARISH. In March 1941 O. P. M. came into the synthetic rubber picture. I submit Standard's letter of April 10, 1941, to Mr. R. R. Deupree, Office of Production Management, from which I quote [reading from Exhibit No. 476]:

If there is any real chance that our imports of rubber may be seriously reduced within the next 2 years (and I believe we all feel that there is some chance of this) I urge that we proceed at once with the program for the construction of four 10,000-ton rubber plants; one to be erected by each of the major tire manufacturers (who will have the responsibility himself for swallowing his own output of rubber in salable tires) and simultaneously proceed with the necessary butadiene and styrene plants \* \* \*.

It was our judgment in which the Firestone and United States Rubber Co.'s concurred that this 40,000-ton program represented the absolute minimum program which would meet the situation as it actually exists in the United States. If we are to meet an emergency the four large rubber companies must know in advance how to produce synthetic rubber successfully and continuously on a large scale, and how to produce tires from this rubber commercially, each with his own formula and particular conditions. At least three processes of butadiene manufacture should be developed to give assurance of immediate and successful production and ultimate lowest cost. At least two processes of styrene manufacture should be similarly developed.

The original idea and conclusion of all the people concerned based on the theory that the Government would finance the program in some way was that 100,000 tons per annum of synthetic rubber capacity should have been begun last summer. Reluctance to make the large expenditure required rather than any justifiable doubt as to the necessity for such a program if safety of supply were to be assured was the cause of subsequent delay. Certainly something has been learned and some money has perhaps been saved. As against this we have incurred the danger of a real shortage of rubber, which we cannot now be sure we can prevent, and we have also handicapped ourselves by pushing the rubber program along until it conflicts even more seriously than it would have with the ship program, the plane program, and the general preparedness program.



(The letter referred to was marked "Exhibit No. 476" and is included in the appendix on p. 4753.)

Mr. FARISH. I submit Standard's letter of April 15, 1941, to Dr. E. R. Weidlein, of O. P. M., urging that the Government synthetic rubber program should be advanced.

(The letter referred to was marked "Exhibit No. 477" and is included in the appendix on p. 4754.)

Mr. FARISH. To this letter, Dr. Weidlein replied on April 21, 1941, and from which I quote [reading from Exhibit No. 478]:

I am especially pleased to have your reaction to this problem at this time as we are going to have an important rubber meeting in Washington tomorrow and I hope we can really begin to make some definite plans.

(The letter referred to was marked "Exhibit No. 478" and is included in the appendix on p. 4756.)

Mr. FARISH. On May 16, 1941, O. P. M. called a meeting of technical representatives of rubber, chemical, and oil companies to be held on May 21, 1941, to investigate the possibilities of erecting plants necessary for the production of approximately 40,000 tons annually of synthetic rubber. Standard was represented.

On June 17, 1940, Standard met with representatives of R. F. C. to consider the best procedure for the construction of Government butadiene plants. In advance of this meeting, Standard submitted a memorandum for the discussion dated June 13, 1941, which I submit as an exhibit.

(The memorandum referred to was marked "Exhibit No. 479" and is included in the appendix on p. 4756.)

Mr. FARISH. At this meeting arrangements were made under which Standard was to submit proposals for a Defense Plant Corporation butadiene plant. Complete and detailed proposals were submitted to R. F. C. on July 11, 1941, covering a 10,000-ton butadiene project and also a 15,000-ton project. On July 22, 1941, Standard was instructed to drop the 10,000-ton project from further consideration and to proceed with the engineering work on the 15,000-ton project.

In September 1941 the Rubber Reserve Co. instructed Standard to suspend all work on the Government Baton Rouge butadiene project for 1 year. Notwithstanding the cancellation of the engineering work on the 15,000-ton butadiene plant, Standard continued this work at its own expense. Therefore when Pearl Harbor changed the whole Government attitude toward synthetic rubber and R. F. C. telegraphed Standard to go ahead, the engineering work had advanced 3 months. Practically no time had been lost as a result of the Government cancellation of the project in September.

Standard's obligation in the Government rubber program has expanded to a substantial portion of the entire program.

Concerning this rubber situation, there is another allegation that I want to answer. That is, that the company gave to the Nazis—but not to the American and British Governments—information on butyl rubber. The facts are as follows:

Butyl rubber was the outgrowth of research conducted, first co-operatively and then separately, by the German I. G. Co. and Standard in an effort to find a way to vulcanize a rubber-like product called Vistenex, which had originated with the I. G. Co. Standard discovered that by adding a minute percentage of another ingredient

and changing the process there could be produced a true rubber capable of being vulcanized. The raw materials for this product which we called butyl rubber were cheap, but it was difficult to make and its quality was bad. In 1938, soon after Standard had discovered this product, it reported it to the I. G. in the normal way pursuant to the research arrangement between the parties in the field of synthetic rubber produced from oil.

The allegation that the I. G. was at that time withholding technical information from Standard on German synthetic rubber and that Standard therefore should not have lived up to its own commitments is a double fallacy. It ignores both our obligations under the contract and the facts themselves. I. G. was at the same time supplying Standard with much desirable information on the production of raw materials for buna rubber. For instance, as late as December 1938 technical information was furnished by the I. G. representatives on the use of chlorination in preparing butadiene, and the chlorination process was shown to a Standard representative at the I. G.'s Ludwigshaven plant in March 1939. It is undoubtedly true that as the I. G. fell more and more under the control of the German Government—or perhaps as the German Government itself drew nearer to the war—there was an apparent reluctance to respond to further requests for information on these subjects. Yet as a matter of fact the outcome proved that we had even more knowledge at the time than we realized, and that our technical staff had the ability to fill in the gaps in the information more readily than we realized. The efforts of our technical staff showed that sufficient information for the erection of plants and the production of buna rubber was on hand in this country by 1939. Using the disclosures made in the patents themselves and such further information as was available by October of that year, we had the process ready for plant design by February 1940, at which time we proceeded immediately to construct such a plant, as I have stated above.

While the butyl rubber was recognized by us from the beginning to have commercial possibilities, it had no value to Germany's self-sufficiency program because the main raw material for the manufacture is isobutylene, which comes from oil refining and which is not available in Germany in the large quantities necessary. The same thing is true of Italy.

For the reasons stated the disclosure of the butyl rubber at its early stage of development to the I. G. in 1938 was entirely consistent with the relation of the parties and could not possibly have had any political or military implications of any kind. All exchange of information on butyl rubber was discontinued in January 1940.

As to the allegation that Standard refused to disclose the product to the American Government, the facts have already been given in detail.

Senator, I have just a page and half more I would like to put into the record.

The CHAIRMAN. Proceed.

Mr. FARISH. We didn't delay the rubber program. That is clear. If an explanation for lack of rubber must be found, look to Japan. It took Pearl Harbor and the fall of Singapore to bring home to the people the rubber shortage in which we now find ourselves. Whatever

the cause, the fact is that we need rubber. The job before us is to get it. We have done and shall continue to do our best in cooperation with the Government to keep America on wheels.

Instead of organizing such an industry only large enough to care for immediate military needs, I would recommend that the Government expand this program of synthetic rubber production so that, so far as humanly possible, it will care for the civilian needs that are essential in time of war.

We do not realize what a rubber shortage means to a nation that has built its civilization around the use of 20,000,000 automobiles. Many of these are not a luxury. They have become a part of our daily being. Take them from the highways and we must change many of our habits of life.

Automobiles have made it possible for millions of workers to live at a distance from their work. Many have no other practicable means of transportation. The disappearance of automobiles threatens to destroy the value of their homes and upset the lives of their families.

Among the mechanical and scientific discoveries of the last century, automotive transportation has probably exercised the greatest influence on our economic and social structure. Our rubber-tired system of transportation represents an investment by the American public of roughly \$25,000,000,000 in rolling stock, accessory services, and highways.

Fulfillment of military needs is, of course, the immediate necessity. These needs must be provided for from the stock pile of natural rubber, plus the synthetic-rubber units included in the program announced recently by Secretary Jones, plus natural-rubber production still available to the United Nations. But after these needs are provided for, the only limitation on expanding the supply of synthetic rubber for civilian use is shortage of fabricated steel and other construction materials for the necessary plants.

Fortunately, the United States has unlimited quantities of the raw materials from which this synthetic rubber is produced—oil and natural gas. No other country in the world has those materials in such abundance. No other country can create a synthetic-rubber industry as speedily or as effectively as the United States.

Instead of junking 30,000,000 autos, they should be allowed to wear out in useful wartime service—a saving for their owners at a modest average of \$200 for each car of \$6,000,000,000. None of us knows how long the war will last, but it is important that civilian automobiles should outlast the war.

To help curb inflation, the economists tell us it will be increasingly necessary to provide consuming power to absorb the great surplus of purchasing power that the war creates in the increasing pay rolls of the Nation. I know of no other single industry whose wartime establishment will do so much to maintain that consuming power at so low a cost and with so small an expenditure of the critical materials of the country.

If this could be accomplished without interfering with the war effort, the creation of the necessary synthetic rubber capacity would require less than 1 day's production of steel and a plant investment of about \$15 per car.

This is no new proposal. Almost 2 years ago, on June 14, 1940, I told the Senate Military Affairs Committee:

In an emergency, if we are shut off from raw-material supplies, if the industry jointly—I mean the petroleum industry as well as the rubber industry—were put to it and told to go ahead with adequate finances to do the job in a reasonable period of time, we can make all the synthetic rubber that we can use in this country.

I invite your committee's study of the testimony at that hearing.

Senator CONNALLY. Mr. Chairman, I just want to ask one question. I don't want to prolong your testimony, Mr. Farish. Could you or Mr. Howard, either one, in a brief way tell us just the difference between this butyl rubber and buna? I suppose it is by the use of some other chemical compound or element to distinguish it. Could that be easily and briefly told?

Mr. HOWARD. Senator, the butyl rubber is made from about 98 percent of isobutylene, which is a normal refinery byproduct. The remaining 2 percent is the butadiene that you have heard about.

To make buna rubber you must have butadiene, which is not a normal refinery byproduct at all, but a rather expensive thing to make from a refinery byproduct. So there is one complete stage of manufacture that is omitted in making butyl rubber that has to be carried on in making buna rubber.

Senator CONNALLY. That makes the buna, of course, cost more, I suppose.

Mr. HOWARD. Yes, sir. The raw-material cost for buna rubber is supposed to be at the present time perhaps 15 or 16 cents a pound, maybe a little higher than that. The raw-material cost for the butyl rubber is probably not more than 3 cents a pound. The manufacturing cost of the two is, roughly, the same. The saving, therefore, comes in the lower cost of the raw material on the butyl. The difference is, however, Senator, that the buna rubber has been developed to the point where buna is really a satisfactory substitute for natural rubber for heavy duty; that is, for a real tire that will run just the same as your natural-rubber tire. The butyl rubber, unfortunately, despite our hardest efforts, we have not yet got to the point where it will stand hard punishment. Therefore you have got to accept it as a light-duty tire, not suitable for heavy service work.

Senator CONNALLY. Slow speeds?

Mr. HOWARD. Slow speeds or conditions under which it won't heat up.

The CHAIRMAN. Are those some of your synthetic products?

Mr. FARISH. I was going to suggest, Senator, that we have brought here for the committee's inspection or interest three of these tires made from the different types of rubber.

The CHAIRMAN. They are all labeled so we can tell them. We will look at them when we get through. Senator Connally wants to know if they are insured.

Mr. FARISH. No; they are not insured, but they are in the custody of your committee.

Here, also, is a gas mask that we will put along with them.

The CHAIRMAN. All right, we will examine them.

Senator CONNALLY. That was about all I wanted, to distinguish between the two. The buna rubber is practically as good as the natural rubber?

Mr. HOWARD. Yes.

Senator CONNALLY. But it costs a great deal more than the butyl?

Mr. HOWARD. Yes.

Senator CONNALLY. Is one of those tires made out of buna?

Mr. HOWARD. Yes, sir; one tire is buna rubber, one tire is neoprene, and one tire is butyl.

Senator CONNALLY. Which is the buna rubber—the best looking one?

Mr. HOWARD. This is the buna rubber [indicating].

The CHAIRMAN. We will examine them when the committee adjourns. Senator Ball has to catch a train and I am giving him an opportunity, if Senator Connally is through, to ask any questions he wishes to.

Senator BALL. Mr. Howard, did I understand you correctly to say that your 1929 arrangement provided that while Jasco owned these patents, I. G. still controlled their exploitation in the United States of buna rubber patents?

Mr. HOWARD. As to the patents they put into Jasco, yes.

Senator BALL. Which included the buna rubber?

Mr. HOWARD. That is right.

Senator BALL. At least in 1938 you were trying to get I. G. to agree to their exploitation in the United States.

Mr. HOWARD. That is correct.

Senator BALL. And I gather that for some period before that they had refused to go ahead with it.

Mr. HOWARD. I think the period was about a year in which they felt that it really ought to be done in the United States, but hadn't got the permission of their government to do it. They succeeded in getting that permission at the end of 1938.

Senator BALL. They got that at the end of 1938?

Mr. HOWARD. Yes; they did. They came to the United States and started the negotiations at the end of 1938 and undertook their experiments with the tire companies here during the year 1939. Things were just in that state when the war broke.

Senator BALL. Was it apparent to you that I. G.'s policies under this agreement were being dictated to a certain extent by the Hitler government from about 1934 or 1935 on?

Mr. HOWARD. No; Senator, that is not true. The period between 1934 and 1937 was a period of discouragement with regard to any possibility of doing anything commercially with the product. As I told the committee yesterday, through that period the I. G. were of the opinion that the du Pont product, neoprene, which we have here, was a better product than their own, and from the little we know of it we agreed with them. During that time they were spending very little of their own money on the matter, although the German Government was giving them some subsidy money to continue to develop in Germany. So, it wasn't until 1937 or the early part of 1938 that buna, as an attractive proposition, began to appear on the horizon again, and that was the period in which we thought they ought to move rapidly in the United States; and they confessed to us that they couldn't move rapidly.

Senator BALL. When was it that the German Government began to invest large sums in the development of synthetic rubber plants?

Mr. HOWARD. Their first large-scale plant had just been completed

when the war broke out, Senator. I should think it was started about, maybe a year or a year and a half before that.

Senator BALL. I see. All right; that is all.

The CHAIRMAN. Senator Kilgore.

Senator KILGORE. I just had one more question I wanted to ask along that line I started a little while ago. In this pool of 2,000 patents, were all those placed with Jasco?

Mr. HOWARD. No, sir; most of them were oil patents. Only a small portion went to Jasco.

Senator KILGORE. You pooled certain Standard developments along with those 2,000, did you not? In other words, part of those patents were oil development patents that you worked out yourselves or that you had originally before I. G. got a hold of them, or did I. G. contribute all the patents?

Mr. HOWARD. They contributed all the patents referred to in that memorandum, Senator; yes.

Senator KILGORE. And throughout the entire patent system there was a string of patents contributed by them that couldn't be used in the United States except with their permission? In other words, the strings all pulled to Germany and no strings pulled to the United States.

Mr. HOWARD. No, sir; on the contrary, the entire oil business of the world as affected by any patents of theirs was in the control of Standard Oil of New Jersey, and also so much of this oil chemical business as originated with Standard Oil of New Jersey itself was in Standard Oil of New Jersey's control. The Germans control only the oil chemical business which they originated.

Senator KILGORE. Now, of course you permitted them to go ahead on the patents that you controlled and developed them in Europe regardless, but they refused to let you go ahead with the patents that they controlled. Is that the story? I mean is that the picture of the situation along in 1938?

Mr. HOWARD. I am sorry, Senator, would you mind repeating.

Senator KILGORE. Maybe I am not clear. You just stated that there were certain of this group of patents which you controlled as far as exploitation went, throughout the world.

Mr. HOWARD. Most of them, Senator.

Senator KILGORE. Most of them?

Mr. HOWARD. Yes, sir.

Senator KILGORE. Now, I. G. was going ahead exploiting and operating those patents in Europe during all this period of '38 when you were trying to get permission to operate the ones on which they had it.

Mr. HOWARD. No, sir; they had no interest outside of Germany in anything except the oil chemical and chemical field. They had no interest in the oil field whatever.

Senator KILGORE. I know, but they had the right to keep you from operating these rubber patents in the United States without their permission; you couldn't use those in the United States without their permission.

Mr. HOWARD. Couldn't use them anywhere in the world without their permission.

Senator KILGORE. All right. You had the same string on the patents that you turned over to them?

Mr. HOWARD. We didn't turn over any patents to them, Senator, not a single patent. We put into two American corporations, one in which we owned 80 percent, our hydrogenation patents and nothing else, and into the other corporation, Jasco, we were to put the patents dealing with oil chemicals.

Senator KILGORE. You turned over the hydrogenation patents to this newly formed corporation?

Mr. HOWARD. Yes.

Senator KILGORE. Did you have the same string on those hydrogenation patents with reference to their use in Germany and the European countries that they withheld on the rubber patents as far as the American corporation was concerned?

Mr. HOWARD. Yes, sir, we did; and we exercised it. On several occasions we turned down proposals to license the hydrogenation process because those were contrary to the ideas of the Government of the United States. I refer to one deal in which the I. G. negotiated a \$2,000,000 royalty contract with the Japanese in 1938. We took it up with our State Department; they asked us to hold up the deal. We held up the deal and it was never completed. That was an example of our control over the field in which the patents were under our control and our use of that control.

Senator KILGORE. Was there ever exercised in Germany—

Mr. HOWARD (interposing). We had no control over any of I. G.'s patents in Germany, although we still kept control of our own patents in Germany.

Senator KILGORE. I. G. had hydrogenation patents of their own?

Mr. HOWARD. Yes, sir; they originated the process, Senator.

Senator KILGORE. And they were not put into the pool?

Mr. HOWARD. They were all put in, that is what we bought, Senator, as the I. G.'s hydrogenation patents except for Germany. In Germany, Senator, we made an arrangement to market by our local marketing company the product that they made by hydrogenation in Germany. That was the situation in Germany. They manufactured and we sold. Outside of Germany we had the entire rights under the patents, both for manufacturing and sale of the product.

Senator KILGORE. It still looks to me like a one-way agreement. That is all I am getting at. That is all I have right now, Mr. Chairman.

The CHAIRMAN. Senator Herring.

Senator HERRING. No.

The CHAIRMAN. Senator Connally.

Senator CONNALLY. No; I don't have anything to ask.

The CHAIRMAN. Senator Mead, Senator Burton.

Senator BURTON. Mr. Chairman, I regret that I was not able to be here this morning or until now, this afternoon. Therefore, I don't want to impose upon the gentlemen who have been testifying so long and the committee. But there is a phase of this matter looking forward about which I would like to ask and as to which I believe I have sufficient background from previous testimony to ask the question.

As I understand it, Mr. Farish, you have now turned over and made available to the United States and to others in the United States who may need to make use of these processes during the war, a full opportunity to do so during the war, is that correct?

Mr. FARISH. That is correct.

Senator BURTON. Now, then, looking forward to the days after the war, I might preface this question by this statement: It seems to me obvious both from your testimony and from the general knowledge of the situation that in these days when tremendous advances are being made through mobilized inventive genius in research laboratories, that probably the future course of civilization is to be determined by the use that is made of these scientific advances, whether it is in electric power or chemistry or petroleum or wherever it may be. Assuming such a picture, it seems to me that it becomes of tremendous importance to the United States facing the international situation after the war, that all of those newly discovered processes which may originate or be owned in this country, be made use of in such a way that they will assist the United States in meeting the problems ahead of us.

Can you tell me how you believe your company, owning as it does and having a large share in the future through these inventions—how you would recommend that these properties and these processes be made available most helpfully to the interests of the United States?

Mr. FARISH. Senator, that is a very difficult question. I don't think we have debated it or studied it to the point where I could give a very constructive answer. My point would be this: That I agree with you thoroughly that the future success, using success in a very broad way—standard of living and progress of civilization and everything else that goes with it of every country—is dependent largely on the progress of chemistry and similar arts, and I go back in making that statement, if I may, to 1925 when I happened to be one of a group here in Washington who was called in for a dinner party that an associate of Mr. Hoover's, who was then Secretary of Commerce, gave. Mr. Hoover was given the floor, and as usual under those conditions, Mr. Hoover subjected himself to any question that anybody cared to ask about. The particular subject of debate that evening was the price of rubber. Mr. Hoover at that time was attempting to break the price of rubber. It was something on the order of \$1.23 a pound.

Senator CONNALLY. May I interrupt? Was that during the Stevenson plan that you are referring to?

Mr. FARISH. Yes, sir; I think so, Senator.

Senator CONNALLY. Go ahead.

Mr. FARISH. During the course of the evening, Mr. Hoover outlined his program of how to break the price of rubber. During the evening—this was a group of about 25 industrialists—we got a very severe lecture, if I can put it that way, from Mr. Hoover on the subject of research development in the United States, and he made the prophecy then that if there wasn't more money, more brains, more men put to research efforts in the United States, we were going to lose out in the world contest. He gave the figures—I can't quote them—but he gave the figures of the research effort that was being made in the British Isles, the research effort that was being made in Germany, and the research efforts being made in the United States. His conclusions were that the Government, our universities, and our industrial institutions in this country were not spending enough money or making enough effort in the general research field.

I think we all felt that he was right. At any rate, the research effort in this country has grown tremendously since that day.

Now, to your point. I think it should grow further, and I don't know how to stimulate research and how to stimulate inventions any



better than our patent system, which gives the inventor or the discoverer certain preferred rights. I haven't studied that through and therefore I am unable, Senator, at this time to offer any suggestions of what can be done. Insofar as our patent position is concerned, we have agreed with the Assistant Attorney General that these patents will be licensed on a fair and reasonable basis after the war, everywhere.

Senator BURTON. Mr. Chairman, I want to make this as brief as I can because I know you have been here so long.

The CHAIRMAN. Proceed. We are trying to get at the facts and I want everybody to ask every question he has on his mind. We are not going to be in any hurry about adjourning.

Senator BURTON. I want to press this further. It seems to me that this subject that you and I are now discussing may very well be the critical factor in the recovery of this Nation following the war. If we come out of the war with a \$200,000,000,000 debt and we come out of the war with a need for stepping up production in the world and creating new wealth, we are likely to fail as a Nation and our system of civilization is likely to fail unless we can make this new wealth available to us on a broad scale for the benefit of the Nation as a whole. Therefore, let's say that the research is being carried on adequately and there is a mobilization of inventive genius, but the thing that concerns me is how shall we make sure that the benefits from that are made of the greatest possible use and are pressed to the greatest possible development, and how can we make sure that there is avoided a restriction of progress and an increase of prices due to restriction of progress instead of the reverse? Have you a suggestion on that subject?

Mr. FARISH. Senator, I am sorry, but I can't make any contribution at this time on that. I think that is one of the serious jobs that is before this Congress, before our legislative body. Some method must be found to stimulate the spending of money, if you will, to carry on research effort and at the same time to have that discovery or invention made use of by the public in a way that will do what you suggest must be done.

Senator BURTON. That, then, leads me to the underlying question. Assuming, therefore, that your company and others like it have this tremendous potential source of wealth in your ownership, do you not agree that there must be some sort of governmental supervision and some sort of direction and some sort of governmental conduct of international relations with regard to it in order to protect both your investment and the recovery of this Nation?

Mr. FARISH. I think that some improvements can be made, sir. I couldn't go further than that at this time, Senator.

Senator BURTON. But do you then indicate that your company does feel that there is a need for some kind of governmental supervision in this field for your own protection as well as for that of civilization?

Mr. FARISH. I feel this, Senator, that there is some need for a more general cooperative effort as between patent owners and process owners for the general good of the public. Now, today we can't do it because of the antitrust laws. Some way must be found by which, if you will, the product of brains or research can be merged

for the general good, and at the same time control it against exploitation or profiteering.

Senator BURTON. Will it not be of value to you, let's say, in dealing with other nations if in that very dealing or dealing with companies of other nations, that you work in cooperation with our Government instead of without the help and supervision of our Government?

Mr. FARISH. Work in cooperation with them? Certainly.

Senator BURTON. It will be of aid to you really in the development of your own business if you work with the Government in these relations instead of without the Government.

Mr. FARISH. Well, I wasn't aware, Senator, that we didn't try to work with the Government in every way we can.

Senator BURTON. I am not charging that you did or didn't. What I am pointing out is that it seems to me that, let's say, in these past negotiations you worked to a certain extent on your own and without participation and supervision of the Government, whereas it might well have been to the benefit of everybody concerned if there were a closer relationship between the two at the time.

Mr. FARISH. I agree with you.

Senator BURTON. One further question. From your experience in the fields of international business and the development of your industry, do you feel that there is a place at which this supervision by Government may stop to the advantage of the public themselves short of governmental ownership and operation?

Mr. FARISH. I do. In other words, I think wherever Government, speaking broadly, has attempted to control such efforts as we get from competitive stimulus, that we reach a stalemate and we stop progress.

Senator BURTON. My question was not only do you think so from the point of view of your own concern, but from the point of view of the public itself.

Mr. FARISH. Yes, sir. In other words, I think to get the maximum progress we must have competition and stimulation that comes through the friction of business contacts and rivalry.

Senator BURTON. Let me refer to another type of industry which I think perhaps may hold an illustration for us. In the public-utility field it has seemed to me clear during the past several years that it has been to the definite advantage of the public-utility operators to cooperate with the Government rather than to be hostile to governmental supervision and control, so that today the public utility industry derives its greatest security and its greatest advance through a general prosperity of the Nation. It seems to me when your industry gets into a field of almost world monopoly or the possibility of world monopoly in certain fields, you there again become affected with public interest so fundamentally that you can't reach your own best development even financially or commercially without the fullest cooperation and supervision by a governmental agency that is able to deal with the other nations of the world at the same time. Do you think that is true?

Mr. FARISH. I think you reach your border line, Senator, that I am not capable of defining at the moment, as to where that Government control or supervision stops for the benefit of everyone concerned.

Senator BURTON. But you do recognize it goes beyond the strictly public utility field into the field of private industry under certain conditions?

Mr. FARISH. I do.

Senator BURTON. Thank you.

Senator MEAD. Mr. Farish, in answer to Senator Burton's question you answered in the affirmative in explaining that everything without any strings has been turned over now to the Government and to the industries of the country for the manufacture of synthetic rubber, that is the patents, and the licenses and the know-how and everything else is available for the war effort without any strings.

Mr. FARISH. That is my understanding, sir.

Senator MEAD. How long has that been true?

Mr. FARISH. Since the consent decree. Prior to that, it was all available with the royalty arrangement of the December 20 agreement.

Senator MEAD. And that is for the duration?

Mr. FARISH. Yes, sir.

Senator MEAD. At the end of the duration, then, certain rights in this particular field will revert back to Standard Oil?

Mr. FARISH. Yes, sir.

Senator MEAD. So that if anyone wanted to get into this particular business to make a contribution to the war effort, they would realize at the outset the uncertainty of their future; they would be in it for the duration only; all their investment would be of no avail as soon as the war effort is over, and they would probably encounter a great deal of difficulty in securing raw materials.

Mr. FARISH. No, Senator. I think that is not a correct statement of the situation.

Senator MEAD. They would have no trouble getting the raw materials?

Mr. FARISH. No. The point is, after the war the obligation is that the patents and processes that are available now without royalties will be available.

Senator MEAD. Then with royalties.

Mr. FARISH. Will be available to everybody at reasonable royalties to be fixed by the Government.

Senator MEAD. All right.

Mr. FARISH. By Government authority.

Senator MEAD. So that anyone going into this business would have to make the investment of their own money, realizing the difficulty of assembling raw materials, and encounter the competition with the synthetic- and natural-rubber business, and also assume the burden of reasonable royalty payments after the war is over. When you add it all up, it looks to me as though the Government will have to put up the money for the production of synthetic rubber for the duration of the war. The difficulties, the obstacles, are so restrictive that it will be a case where the Government will have to, for the most part, pay the bill.

Mr. FARISH. Well, Senator, the program now to get synthetic rubber in this country is wholly financed by the Government.

Senator MEAD. I know that; and the expansion of the industry because of the obstacles, including the future, of the patent rights, and the possibility of royalties, will not be attractive enough for anyone

to go into it on a permanent basis. It is just a proposition for the duration in which the Government will have to pay the bill.

Mr. FARISH. No; I think still you are drawing a wrong conclusion. The Government, in order to get synthetic rubber today, is financing and having constructed for their use, for their ownership, these synthetic-rubber plants, and they pay no royalties during the war period. I believe it is 6 months after the duration of the war, any further use of those processes and facilities will pay a reasonable royalty. That royalty will be determined by Government authorities. I don't know how anything looking to the future could be put on any simpler basis.

Senator MEAD. I wanted to be satisfied that there was no future in this particular business for an outsider.

Mr. FARISH. Well, pardon me right there. If there is a future in this business for an outsider after the war is over, you will have to remove the competition of natural cheap rubber.

Senator MEAD. There isn't any doubt about that. In our aluminum hearings we were led to believe, and we now believe, that there was room for competition in that particular field, but this is a more difficult, complex problem, because of the competition of natural rubber with synthetic rubber, because of the limited life of the patents, and because of the coming again of the royalties, and all those form an obstacle that leads me to believe that this is a Government venture for the duration for which the Government will have to pay the bill.

Mr. FARISH. I have just asked Mr. Howard what was the length of these patents. Ten years, Senator.

Senator MEAD. Ten years.

Mr. FARISH. On the buna patents.

Senator MEAD. I see.

Mr. FARISH. I would like to point out this when you speak of the synthetic rubber standing on its own feet after the war. It will be then in the same competitive position that it has always been in, and that is that it would have to meet it whether the Government owns these plants that it owns or whether private individuals buy them or lease them from the Government and operate these plants. The range of rubber prices, I think, has over the past 5, 10, or 20 years—a little over 20 years, maybe—ranged from \$1.23 a pound down to about 3 cents a pound.

Synthetic industry, to compete with that on anything like a firm basis, could only do it under a tariff protection or under a Government subsidy.

Senator MEAD. And perhaps certain economies that haven't been realized as yet, economies in the processing and manufacturing, elimination of royalty rights.

Mr. FARISH. May I say there, this is purely a matter of opinion, but it is my opinion, so far as I know, that most synthetic industries have continually lowered the cost with experience and trial, and in some instances have absolutely pushed out of competition the natural product.

Senator MEAD. I was just trying to make——

Mr. FARISH (interposing). Whether that is possible in rubber or not the future will have to determine.

Senator MEAD. I just wanted to assure myself, as it were, that this was primarily a wartime enterprise because of the natural product——

Mr. FARISH. Unquestionably .

Senator MEAD. And other obstacles.

Mr. FARISH. Unquestionably.

The CHAIRMAN. Isn't it true, Mr. Farish, that the fundamental chemicals from which this rubber is manufactured are butadiene and styrene?

Mr. FARISH. Right.

The CHAIRMAN. And that those chemicals are made at the oil refineries which the Government itself is financing to make along with 100-octane gasoline, and that the real manufacture of rubber itself, after you get the butadiene and styrene, is not such a chore and doesn't cost so much?

Mr. FARISH. That is correct, Senator. May I amend your statement just briefly for accuracy. As I understand the situation in this country, when we go into synthetic production of buna-S rubber there is something over a hundred thousand tons of butadiene available from the chemical industries that is more or less a byproduct with them, not a product that they build plants to produce. With the oil industry it is a product that you build a plant to produce.

The CHAIRMAN. I see; but in that same plant you make 100-octane gasoline also.

Mr. FARISH. You can do it; yes, sir. That again is an operation where you build additional equipment to do it; and also toluol.

The CHAIRMAN. And the Federal Government is financing that increased plant facility necessary to make those products.

Mr. FARISH. They are now; yes, sir.

The CHAIRMAN. That is what I wanted to know.

Senator HERRING. Mr. Chairman, I wanted to ask Mr. Howard, since you first commenced developing synthetic rubber here in this country, how many different departments of the Government did you consult?

Mr. FARISH. Did you ask me?

Senator HERRING. Either one.

Mr. FARISH. Well, Senator, that is all covered, I think, in the testimony I read today. We go from the War and Navy Munitions Board to the Council of National Defense, and so on. I think there are five different Government organizations.

Senator HERRING. And each time you had to start over with an educational process, I suppose.

Mr. FARISH. Not entirely, but we had to make a new start.

Senator HERRING. I wondered how long that delayed the manufacture of synthetic rubber.

Mr. FARISH. Well, it is pretty hard to say how long it delayed it because it was the lack of money and the lack of financing that delayed it.

Senator HERRING. That is the Congress's fault.

Mr. FARISH. Maybe it is Congress, I don't know. I am not trying to charge or blame anybody, gentlemen, on this delay. What I have tried to give you is the facts and the record of what we did and whom we contacted.

The CHAIRMAN. The Congress appropriated a lump sum for that very purpose, and if it wasn't used, it wasn't the fault of the Congress.

Senator HERRING. That was about a year and a half ago.

The CHAIRMAN. Nineteen forty; yes.

Senator HERRING. Did the R. F. C. back in 1941 direct you to discontinue the building of a butadiene plant?

Mr. FARISH. Yes.

Senator HERRING. Do you know why?

Mr. FARISH. In September, I think it was. I read that out just a while ago. Do I know why?

Senator HERRING. Yes; do you know why?

Mr. FARISH. No, sir; I do not.

Senator HERRING. I was just wondering.

The CHAIRMAN. I think the head of the R. F. C. will answer that question when he comes before this committee.

Senator HERRING. That is why I wanted to get his view.

Mr. FARISH. I may make this general comment, Senator, that I don't think there was a general feeling in Washington that we were going to have Pearl Harbor or that we were going to lose Singapore, and that our shipments from the Dutch East Indies were going to be interfered with.

Senator HERRING. You mean to say that this great Standard Oil Co. didn't know the Japs were going down there to take away their properties?

Mr. FARISH. No, sir; we didn't.

Senator HERRING. Well, there is something wrong in the inner circles. I wonder, for the information of some of those here who want to know, if Mr. Howard will give us the difference of neoprene and buna-S and butyl rubber, the relative values of those three.

Mr. FARISH. You mean how they are made, or the value?

Senator HERRING. The relative value.

Mr. FARISH. In use?

Senator HERRING. In its use in the carcass of the tire or in your special uses.

Mr. FARISH. Mr. Howard will have to do that.

Senator HERRING. I was asking him.

Mr. HOWARD. Everyone agrees that a natural rubber carcass with a buna rubber tread represents the ideal solution of the problem so far as we have the natural rubber for the carcass. There is an indication that the natural rubber in the carcass can be very largely, perhaps even a hundred percent, replaced by buna, so therefore we have at the present time in buna-S on a natural carcass, an entirely satisfactory tire, with the hope that the quantities of natural rubber will be reduced continuously. Buna-S rubber can be made in unlimited quantities and quickly, and therefore it forms the basis of the program in the country at this time.

Next in order we have the neoprene and the butyl rubbers. Neoprene makes 100 percent satisfactory tire, not so good as the buna-S natural tire, but nevertheless a satisfactory tire. The difficulty, as I understand it, with the neoprene is the inability to get production in the very large amounts required quickly enough to be of any service in this emergency, and also because the price of that product or cost of that product would be higher.

Butyl, which is the third in order, is the cheapest of the three products, most easily produced, and the one for which the raw ma-

terials exist in the greatest quantity. The handicap of butyl rubber is that so far its quality limits its use to light-duty service. For the ordinary motorist, the taxicab, and the retail delivery truck, it would probably be an entirely satisfactory answer for the period of the war, but since the Government was not concerned with the retail delivery car or the private motorist, they have included in their program only a small proportion of butyl rubber, as they have of neoprene, limiting those two products, as I understand the picture—Mr. Jones can speak for himself on that, of course, but limiting those two products to auxiliary utility in their program, their main program being a military program, which they have based upon buna-S.

Senator HERRING. That was all. I didn't want to indicate any lack of information of butadiene and neoprene and buna-S on the part of the committee, but some of the press were not clear on that and I wanted to clear it up for them.

Mr. HOWARD. May I say one word before we close, Senator Truman?

The CHAIRMAN. Yes, Mr. Howard.

Mr. HOWARD. There seems to have been an impression created, perhaps by accident, that the manufacture of butyl rubber has been a secret of some kind. Butyl rubber was discovered by us in 1937. The patent applications were filed in the United States in 1937, and during the year 1938 those patent applications were filed in every principal country in the world, as was necessary in order that we should preserve our rights in that product. Therefore, beginning with the year 1938, in which we have been accused of disclosing some kind of secret to the Nazis, every major country in the world had in its patent office the secret butyl formula that there has been so much foolish talk about in some of the papers. I wanted to make that statement to clear up that point.<sup>1</sup>

Senator BURTON. Mr. Howard, may I inquire whether the butyl formula in and of itself is enough, or did you need something in addition to it?

<sup>1</sup> Mr. Howard subsequently stated that:

"I would like to add that in the first week of May 1940, just before the invasion of Belgium, I visited Paris pursuant to arrangements made by our French company, and undertook discussions with the Kuhlman Co., the largest chemical company in France, for licensing buna rubber, butyl rubber, and the German product Vistanex from which butyl rubber was derived. An outline of agreement on the introduction of these new processes into France was completed at that time and accepted by the parties in principle. The fall of France within the next month brought an abrupt end to this arrangement, which had not yet been finalized by any signed contracts.

"At the same time our representatives in London, pursuant to plans made months before, conducted similar discussions with the Imperial Chemical Industry, the largest chemical concern in England, but conditions at that time were such that it was agreed no progress could be made, and the subject was put over until more normal conditions would be established in England, the Imperial Chemical Industry stating that they would do absolutely nothing during the war except take care of the most immediate and pressing war needs, which at that time did not include synthetic rubber production. Some time later they did decide to undertake production of some special types of buna rubber and of Vistanex for war purposes, and instead of trying to negotiate any contracts they merely applied for compulsory licenses as the simplest way out of the matter. The compulsory licenses were granted, with the royalty rates fixed at 5 percent by the British Patent Office. Neither the Government nor Imperial Chemical Industry evidenced any special interest in butyl rubber until after Pearl Harbor, although the Government was familiar, through the patents and patent applications, with the technical details of the subject, and the Imperial Chemical Industry had also examined samples of the product and discussed its manufacture with us during the negotiation in May 1940.

"The F. A. Hughes Co. of England, with whom we had some later correspondence, quoted by Mr. Arnold to show that we were withholding butyl rubber from England, was an importing house who have for some years acted as our own sales agents in England. We had at that time (and still have) no commercial production of butyl rubber, and in any case did not desire to use this firm as our agents for any negotiations in England on butyl rubber."

Mr. HOWARD. In addition to the formula, the directions for compounding are also included in the patent, Senator.

Mr. FULTON. On that point that I was talking about of whether you were correct in saying that you wanted to have a central agency to better develop it for national defense or whether that was part of a plan to retain patent control over it which you couldn't otherwise retain under the anti-rust laws, I refer you to the statement quoted by Mr. Arnold and attributed to you on November 18, 1940:<sup>1</sup>

Under the United States patent and antitrust law as it now stands, the right of Jasco to attempt to fix sales prices or conditions is extremely circumscribed, and to meet the necessities of this situation, Jasco proposes to confine general outside sales to a single agent with whom it will make direct agreements.

Now, Mr. Howard, wasn't the purpose of that agency that you had in mind, the retention of control over sales and prices?

Mr. HOWARD. Mr. Fulton, that referred to the specialty market. As I have stated here, the Standard Oil hoped to retain for itself a position in the manufacture of specialty buna rubber comparable to the position the Goodrich Co., the Dow Co., and the du Pont Co. and other maintain in the sale of their respective specialty rubbers.

Mr. FULTON. But as I understand you, you were requiring them to agree that these things should all be sold through your sales agency.

Mr. HOWARD. We were breaking our monopoly by permitting them, in specialty rubber, to manufacture for their own account but not to sell in competition with us. That was the purpose of the arrangement.

Mr. FULTON. It was that private motive that led you to want to have the single joint agency. Is that correct?

Mr. HOWARD. We had two motives in the single joint agency. One was to preserve some rights for ourselves under our patents, and, second, to meet the Government's desire to get some sort of a buna-S development here under private auspices before the Government itself would take it over.

Mr. FULTON. Did I understand you to say that the companies other than the Standard agreed with you on that joint agency and that they wanted to operate as one single company without competition?

Mr. HOWARD. Well, I don't know as to that, Mr. Fulton. Are you quoting?

Mr. FULTON. No; I am asking you whether this was Standard's idea or whether the other companies concurred in the idea. Did they want to have a single company that would control those sales, or would they have preferred competition?

Mr. HOWARD. I think that most of them accepted as a theory the idea that the Army and Navy Munitions Board had and that we had, that the rational plan of trying to develop an emergency tire industry, a tire industry to meet an emergency with synthetic rubber, would be through common action, but knowing one another and their competitive troubles, I think they were all rather skeptical about whether that plan would be practical.

Mr. FULTON. And in one exhibit which you introduced there is referred to a kind of tabulation of votes on several different plans, from which I note that the first choice of the greatest number of companies was No. 3, No. 3 being a Government contract to purchase for

<sup>1</sup> Exhibit No. 411, appendix, p. 4638, at p. 4639.



a 5-year period on a competitive basis, with provision of Government capital.<sup>1</sup> Doesn't that mean that most of the companies wanted to have competition?

Mr. HOWARD. I think the poll of votes you are reading is the votes cast at a general meeting referred to by Mr. Batt here in which all the people interested in rubber tried to come together on what they would suggest for a program.

Mr. FULTON. Yes. And the first choice was that particular one I just read, competition.

Mr. HOWARD. And that is the same choice that we ourselves made somewhat later in the year, and the basis of the program that we first worked out with Mr. Jones—by worked out with him I mean that we suggested to him—was that he should ask at least the four major rubber companies to make to him competitive proposals to proceed to erect synthetic rubber plants and to manufacture rubber in them, and that was the suggestion covered by the memorandum of December 5, I think, or 8, that we have in the record.<sup>2</sup>

Mr. FULTON. And the second proposition on which the greater number voted for approval was No. 4, private operation of plants with R. F. C. financing. In other words, six were in favor of the first one, competition on a 5-year contract, and four preferred private operation with R. F. C. financing. Does that accord with your recollection?

Mr. HOWARD. I am sorry, I can't recollect the votes on that occasion, Mr. Fulton.

Mr. FULTON. Now, in connection with that statement, there was no holding back of the butyl and that there was in fact a full publication of it, I would like you to comment on that quotation from you on November 6, 1939, where you said or are quoted as saying by Mr. Arnold, in his testimony:<sup>3</sup>

There is a considerable temptation to publicize this butyl rubber development and to seek contact with the rubber companies on it immediately, but a sounder policy apparently is to confine the development to our own organization up to the point of standardized operations of our pilot plant about next January or February—

which would be 1940.

This would give us an opportunity to feel out the whole synthetic rubber situation in the United States with the duPont Co. and with the four leading American rubber companies, through our contacts with them on the buna matter. The additional time is also desirable from the patent standpoint.

What does that mean, if you had already given them full information?

Mr. HOWARD. Well, the patent problem was probably the decisive problem there. Whenever a new product such as a new synthetic rubber is introduced on the market, everyone who can get a sample of it endeavors to find some superior way of utilizing it for his purposes, whatever those purposes may be, in the hope that he can get a patent on its use and prevent anyone else from using the new product for that same purpose. Now, if a manufacturer puts out samples of a new product, such as synthetic rubber, before he has had a reasonable opportunity to find out how the product can be

<sup>1</sup> See Exhibit No. 468, appendix, p. 4745.

<sup>2</sup> Exhibit No. 473, appendix, p. 4749.

<sup>3</sup> Supra, p. 4321, and Exhibit No. 405, appendix, p. 4633, at p. 4634.

used, at least practically, in the major markets for which it is intended, the result will be, when he gets ready to manufacture it commercially he will find a crowd of nuisance patents sitting around the thing, with dozens of people, each claiming an exclusive right to use that product in a particular field of his own. That is a common problem that industry has to meet, and it is a very difficult problem to meet, and that was our reason for not wanting to publicize it prematurely or to distribute samples prematurely. We felt that we must have some background of experience in the thing in order to avoid a nuisance patent situation.

Mr. FULTON. That is further emphasized by the statement that as late as June 13, 1940, you were writing that you didn't want to give out samples until September 15, stating that that would give you a "further opportunity to protect yourself patent-wise."<sup>1</sup>

Mr. HOWARD. That is correct.

Mr. FULTON. Doesn't that mean, whether the delay was entirely proper as a commercial delay, there was in fact a delay of at least a year during which you were endeavoring to protect yourself patent-wise and refusing to make public for sample purposes.

Mr. HOWARD. No, sir. I don't think so. We were working quite effectively and aggressively ourselves at that time and using all the material that we produced in our own experiments. There was no necessity for anyone else to get into that field, I should think.

Mr. FULTON. And then I noticed on May 27, 1940, where you refer to Colonel Hines having written that the reason for giving only one company samples of this buna was "perhaps your stock of X material is very limited, and for that reason it may not be possible for you to have all the principal companies run the test to determine the suitability of your X product in the manufacture of tires. If this is the case, I would suggest that you select the company best fitted to give us the results in the shortest possible time."<sup>2</sup>

Was that why you selected Firestone and gave it a 3 or 4 months' start on samples?

Mr. HOWARD. Well, we considered the Firestone Co. at least as good as anyone else for that purpose, and we were already cooperating quite fully with the Firestone Co. in designing plants for the production of buna rubber and exchanging experience on buna rubber, and we therefore thought it would be a natural thing to cooperate with Firestone also on butyl rubber.

Mr. FULTON. But my point was, was Colonel Hines right in thinking that there was not enough to give more than one company a sample and thereby suggesting that you confine it to one company? Was that the reason you confined it, or did you confine it for other reasons?

Mr. HOWARD. He was quite right in his conclusion that at that time we did not have sufficient samples for general distribution throughout the trade. That is correct, sir.

Mr. FULTON. Now, you didn't have sufficient samples to give any other company any part of it?

Mr. HOWARD. Oh, yes; we could give them to a limited number of companies, but we couldn't give them throughout the trade without discrimination to everyone who applied.

<sup>1</sup> See Exhibit No. 407, appendix, p. 4635.

<sup>2</sup> Exhibit No. 463, appendix, p. 4742.

Mr. FULTON. How much rubber would be needed for a tire?

Mr. HOWARD. Well, to run a test on production of tires, I think takes about anywhere from 500 pounds of rubber up. I think perhaps as much as a thousand pounds of rubber to run a test on tire production, even a very small test.

Mr. FULTON. How much did you have at the time that Colonel Hines thought you didn't have enough for more than one company?

Mr. HOWARD. I am sorry; I don't know, sir.

Mr. FULTON. I refer you to your exhibit where you say, dated May 29, 2 days later than Colonel Hines' letter dated May 27, in a letter to you from Mr. Hopkins:<sup>1</sup>

Several tons of product meeting the established standards have been accumulated for sample purposes.

Does that refresh your recollection that there was more than enough rubber to give several companies samples?

Mr. HOWARD. My recollection, Mr. Fulton, is that the entire stock of that material disappeared to this limited number of companies in their own work, without going to any others within a short time. It wasn't one company. We established cooperation very soon with quite a large number of companies, and if you would like to see what happened to our stock of rubber, which melted away like snow, I will be very glad to give you a list of the samples that were given out.

Mr. FULTON. And the dates.

The CHAIRMAN. Will you do that and put it in the record with the dates?

Mr. HOWARD. Yes, Senator.

The CHAIRMAN. And the dates at which they were given out?

Mr. HOWARD. Yes, sir.

Mr. FULTON. Now, was Mr. Arnold wrong in reading these letters to the effect that the general trade were not given samples until the 15th of September, whereas Firestone had it 3 months before and General Electric had it some 6 or 7 weeks before?

Mr. HOWARD. The general trade were not given samples, and have not been given samples yet. The samples are being allocated by the War Production Board at the present time to people who they believe have the best chance of making profitable use of them.

Mr. FULTON. Who, in addition to those two companies, got samples before September 15?

Mr. FARISH. I have already read that in the record.

Mr. FULTON. I don't recall whether that was read.

Mr. FARISH. By that I meant, Mr. Fulton, I read into the record that the "Firestone Tire & Rubber Co. and the United States Rubber Co., and later Acushnet Process Co., General Electric, and United Carbon. In addition, we continued to supply the Army and Navy with their needs. Butyl rubber was also furnished the National Bureau of Standards and two university professors working on defense projects."

Mr. FULTON. I meant I wasn't aware that you had given any dates. Could you tell me which of those companies, if any, other than General Electric, got it before the 15th of September?

Mr. FARISH. I think the whole file ought to go into the record, just where all the samples went.

<sup>1</sup> Exhibit No. 464, appendix, p. 4741.

(The data referred to was marked, "Exhibit No. 480" and is included in the appendix on p. 4757.)

Mr. FULTON. Then I notice, in addition, Mr. Howard, that Mr. Hopkins, in a letter dated May 29, informed you that—<sup>1</sup>

It is estimated that this pilot plant operation will continue until September, at which time data should be available which will permit the design of a commercial plant.

Was any commercial plant for butyl designed in September of 1940?

Mr. HOWARD. No, sir; it was March of 1941 before we were able to get far enough forward to think we could design a commercial plant.

Mr. FULTON. And he proceeds to say: <sup>2</sup>

Following normal procedure, a commercial plant will not be operating for 18 months from the time design is started. Commercial operation is not expected before the spring of 1942.

But I understand that, too, has been necessarily later postponed, has it not?

Mr. HOWARD. Yes, sir. That plant was scheduled for operation first in the summer and then in the autumn, and I think it is now November 1 that it is supposed to be ready for operation.

Mr. FULTON. And could you tell us why there was a delay of 3 years between the time when you developed the butyl and the time when you first experimented with it for tires?

Mr. HOWARD. Well, that was the best we could do, Mr. Fulton. It is difficult to make clear the number of difficulties that have been involved in this production of butyl rubber. You will remember that buna rubber originated sometime around 1929, as far as our knowledge goes, and perhaps much earlier, and that in 1937 it was still very, very discouraging. I don't think you believe that we haven't been efficient and aggressive in getting our butyl rubber as far forward as we have between 1937, when we first got hold of it, up until the present time.

Mr. FULTON. Could you tell us briefly, in summary form, what you did with it between 1937 and 1940, when you first started your pilot operation?

Mr. HOWARD. Well, we had two problems. One was to make it at all, and second was to make it good enough so that we thought it would be of some value. I would like to read to you what we expended on it. Would that be some help to you, sir?

Mr. FULTON. I would assume that it might be.

The CHAIRMAN. Proceed.

Mr. HOWARD. In 1937 we had 4 men on the job and we spent \$20,000. In 1938 we had 10 men on the job and we spent \$48,300. In 1939 we had 21 men on the job and we spent \$106,400. In 1940 we had 48 men on the job and we spent \$322,000. In 1941 we had 73 men on the job and we spent \$505,000.<sup>3</sup>

Mr. FULTON. Does that mean, then, that the butyl rubber as discovered in '37 was patented, and with respect particularly to your

<sup>1</sup> Exhibit No. 464, appendix, p. 4741.

<sup>2</sup> Ibid.

<sup>3</sup> Mr. Howard subsequently submitted a chart, which appears in the appendix on p. 4804, with the following explanation:

"I submit a chart reducing to graphical form the record of expenditures by Standard in research and development on all synthetic rubbers during the period 1937 to date. On this same chart there has been introduced for comparison purposes corresponding curves showing the U. S. Government's expenditures on military airplane production and the total expenditures for national defense, including lend-lease for the same period."

answers to Senator Mead, was materially changed due to your extensive laboratory work between that period and 1940?

Mr. HOWARD. I think the greatest improvement in our Butyl rubber occurred during the last 6 months. We just didn't get anywhere for a long time. During the last 6 months we got through a lot of troubles all at once. We found out how to get rid of the worst delays in manufacture and we also found how to get rid of the worst difficulties in the quality of the product.

Mr. FULTON. When you say in manufacture do you mean the manufacture of the finished product or just the manufacture of butyl rubber?

Mr. HOWARD. Just the manufacture of butyl rubber.

May I exhibit to the committee these specimens? I have told you the difficulty with butyl rubber is that it won't stand heat. When you try to put it to heavy duty it decomposes in the tire so that the tire goes to pieces under hard duty. Here is the Firestone Rubber Co.'s heat test to determine the suitability of a tire for heavy-duty service. I have here a sample of a product made before October 20, 1941. This is what happens to it when it goes through the Firestone heat test.

And here is a product that we just succeeded in getting in October of 1941, and this is what happens to it with the same heat test. In other words, just as late as October we succeeded in making more progress in the quality of the product than we had done in the preceding 2 years.

The CHAIRMAN. These two samples have been subjected to the same heat test?

Mr. HOWARD. Yes, sir; that is correct, Senator.

Mr. FULTON. Then, in view of that, was it scarcely correct to say to Senator Mead that the butyl rubber is a very simple thing which would be known to all and was known throughout the world by your filing the patents in 1937?

Mr. HOWARD. Well, I said that it wasn't a secret, which it wasn't in 1937, and in 1938 we gave to the patent offices of the world the information that we had at that time. Ever since then we have been improving that.

Mr. FULTON. The butyl rubber as known to you today is quite a substantially different rubber from that which anyone would make by simply applying the processes as described in your letters-patent application; is not that correct?

Mr. HOWARD. Well, our latest patent applications will cover our latest discoveries. Our early patent applications can only cover what we knew at the time, quite obviously, Mr. Fulton.

Mr. FULTON. I mean, though, there is a distinct difference, and it wasn't quite accurate, was it, to suggest that ever since 1937 all was known about butyl?

Mr. HOWARD. I was only suggesting that the criticism that in 1933 we gave to the Germans what was in 1938 a secret was not, perhaps, a fair criticism, because in 1938 we gave to the patent offices of the world everything we knew in 1938.

Senator BURTON. May I follow that? You said that you placed in those applications or in those patents the formula and the direction for compounding, but that is not enough to make the product; is that right?

Mr. HOWARD. Oh, yes, sir; that is enough to make the product, Senator.

Senator BURTON. It is not enough to make a successful product.

Mr. HOWARD. It is enough to make as good a product as we, ourselves, could make at the time.

Senator BURTON. Do the public records now show enough to make the same kind of product that you are now making?

Mr. HOWARD. Oh, yes, sir; we currently file patent applications as we get improvements, Senator.

Senator BURTON. There is enough on paper that can be described and is described to enable a person to duplicate it?

Mr. HOWARD. Yes, sir. If that were not so, our patents would be of no value, Senator. That is a condition of the patent law.

Senator BURTON. Sometimes there is a know-how, isn't there, that is necessary to make it work?

Mr. HOWARD. Well, if the patent omits such know-how as is necessary to make it work, the patentee has lost his rights.

Mr. FULTON. That has happened in some cases.

Mr. HOWARD. Yes, sir. We all realize it.

Mr. FULTON. Now, with respect to the statement on page 9 that Standard has been in the forefront of those advocating an adequate Government synthetic program, I call your attention to the extract from your own executive committee memorandum of March 1, 1940, and I am quoting from it:

The committee agrees the problem has reached the point where potential customers for the product in the rubber industry would either ignore our licenses or their potential suppliers would ignore them, or the development company will have to grant licenses on less favorable terms than they at present are endeavoring to negotiate; or company interests will have to get into the production of buna rubber as outlined in Mr. Howard's present proposal, in order to insure that the present urgent demand is met.

Do you recall that?

Mr. HOWARD. That is not my memorandum, is it?

Mr. FULTON. It is referred to as an extract from the executive committee memorandum of March 1, 1940, and it starts out saying that you joined the committee and explained to the committee the proposal of construction of plant facilities for production of butadiene and related products; so I take it that this is a copy of the official memorandum in the minutes of your corporation.

Mr. HOWARD. Yes, sir; I don't doubt that. I just didn't happen to have seen it before.

Mr. FULTON. Doesn't that refresh your recollection that part of Standard's willingness to proceed was due to the fact that the executive committee of the company agreed that it had reached the point where they didn't dare not to proceed?

Mr. FARISH. What is the date of that?

Mr. FULTON. March 1, 1940.

Mr. HOWARD. I am sorry, I didn't get any such inference as that from it.

Mr. FULTON. I will quote it for you again:

The committee agreed the problem had reached the point where potential customers for the product in the rubber industry would either ignore our licenses or the development company will have to grant licenses on less favorable terms than they at present are endeavoring to negotiate, or company interests will have to get into the production of buna rubber.

In other words, the committee agreed, didn't it, that you had to do it at that time?

Mr. HOWARD. What was the date of that, sir?

Mr. FULTON. March 1, 1940.

Mr. HOWARD. March 1, 1940?

Mr. FULTON. Yes.

Mr. HOWARD. Well, I think that is the time we were going into production of buna rubber, isn't it?

Mr. FULTON. Yes; but I am talking about the motive; I mean, does this refresh your recollection that those express reasons in your minutes were the reasons that you were going into it?

Mr. HOWARD. Well, those minutes I have not seen. If you will give me a chance to study them, sir, I will try to interpret them for you. I don't quite see the pertinence of this.

Well, I think perhaps the key to the matter is contained in the part that you didn't read, Mr. Fulton.

The committee felt that these considerations warranted the company interests in proceeding in the construction of the above-recommended \$400,000 plant as a better alternative than concluding any definite license tie-up with rubber interests on the unfavorable terms for which some of the rubber companies are holding out.

In other words, the committee was apparently faced with the choice of agreeing to what they thought were unacceptable terms of the rubber companies or else proceeding to invest immediately this amount of money in question which involved, apparently, two proposals—several proposals. One was a butadiene extraction plant; one was a buna rubber plant.

Mr. FULTON. My point I think was correct. Was it not that the company was faced with an alternative? It could no longer refuse to adopt one of those several alternatives, and the executive committee so agreed there in their conclusions. It wasn't any longer a matter of free choice, was it?

Mr. HOWARD. Quite obviously it was a matter of free choice. There was nobody who could have forced them to accept any of those alternatives. They simply thought, as businessmen, that those were the probable courses of action, any one of which would be more intelligent than doing nothing, apparently.

Mr. FULTON. Because if you did nothing, somebody else would do something, which is what is said in that.

Mr. HOWARD. I suppose so, but no one suggested that we do nothing, Mr. Fulton.

Mr. FULTON. Even after you decided to do something were you willing to give licenses to other oil companies for buna production?

Mr. HOWARD. As I remember, we were not. We assumed that the buna rubber industry could be done by the rubber industry and ourselves. As far as the other oil companies were concerned, their place in the picture was as suppliers of the raw material.

Mr. FULTON. As late as September 3, 1940, you took the position, did you not, that the Continental Oil Co. should be told when they inquired about a buna license, that you had not given any thought to offering such licenses outside the rubber industry?

Mr. HOWARD. I think that is correct, and I should say up to this moment the decision of the Government itself has been not even to

give to us any buna right for their own program. The Government's decision is the same as ours, except that they exclude us along with the other oil companies.

Mr. FULTON. Was your decision to exclude the other oil companies due to a desire to furnish the raw material product to those who were buna licensees and to exclude those companies who might be able to obtain their raw material product elsewhere?

Mr. HOWARD. No. Our desire was to keep as much as we could of the patented buna rubber business in our own hands so far as that was consistent with good economy and good economics for the country.

Mr. FULTON. But insofar as you had rubber companies, you didn't want to include in the rubber companies, oil companies which might have outside sources of supply.

Mr. HOWARD. Well, at about the middle of 1940, the Goodrich Co. made an affiliation with the Phillips Petroleum Co. for a joint venture in the manufacture of rubber, and from that time forward we dealt with that joint venture, making no discrimination between them and anybody else. The road was open for any other rubber company, if it liked, to make its own affiliation with an oil company. We had no objection whatever.

Mr. FULTON. How does that compare with your statement a moment ago that even today oil companies are not being permitted by the Government to get into the rubber-making business?

Mr. HOWARD. As oil companies, they are not. The Goodrich Co., having, as I understand the matter, merged its synthetic interests—synthetic rubber interests—with those of the Phillips Petroleum Co., that merged company is the vehicle through which the Goodrich Rubber Co., is carrying on its part of the Government rubber program. That is my understanding, Mr. Fulton.

Mr. FULTON. Now, Mr. Howard, did you ever indicate to the rubber companies the price that they should quote the Government?

Mr. HOWARD. Not that I know, sir.

Mr. FULTON. I refer you again to extracts from an executive committee memorandum, dated December 2, 1940,<sup>1</sup> which starts out by saying that you and Mr. Weiss joined the meeting. On page 2, third paragraph thereof, there is the statement:

Mr. Howard pointed out that although the tentative royalties schedule which had been contemplated for buna licensees was 5 percent of the finished rubber price for the first 100,000 tons, 4 percent on the second 100,000 tons, and 3 percent on the excess above 200,000, in view of all the circumstances in this particular proposition it might be desirable to consider a royalty of 3 percent of the probable 20 cents per pound contract price with the Government, which would return per year from each licensee about \$440,000 if the resale price should be negotiated at the minimum of 27 cents per pound, which Mr. Howard had indicated to the rubber companies as the lowest price it would seem safe to consider.

Does that refresh your recollection that you suggested to them that they should not consider a price below 27 cents?

Mr. HOWARD. Mr. Fulton, that only refers to my suggestion to them as to the lowest estimate of cost which we thought could be safely made on the buna rubber. We were advising the Firestone and the United States Rubber Cos. what we thought the manufacturing cost under the processes we licensed to them would be.

<sup>1</sup> See appendix, p. 4873, at p. 4874.



Mr. FULTON. Then the answer is that you did tell them the price that you thought they ought to quote?

Mr. HOWARD. Not the price they ought to quote; no, sir. I told them the estimated price that we thought would be safe as covering their manufacturing cost.

Mr. FULTON. I see.

You were in that, of course, quoting the cost of butadiene and styrene. I suppose. Do you make styrene?

Mr. HOWARD. What was the first part of your question?

Mr. FULTON. I say, you were quoting cost for butadiene and styrene?

Mr. HOWARD. Based on assumed cost of those materials.

Mr. FULTON. Do you make styrene?

Mr. HOWARD. No; we make no styrene.

Mr. FULTON. Now, with respect to butadiene, I note that you need a very small quantity of that in the butyl and that you need a very large quantity of that in the buna. In the case of butyl, do I understand that the isobutylene can be made from regularly known commercial product, butane—in other words, that almost any refiner could make it for you?

Mr. HOWARD. Isobutylene is a normal byproduct in all large refineries. You don't need to do anything but separate it. It is right there.

Mr. FULTON. If the Government's production in its present program had been concentrated on butyl rubber instead of on buna, would you have been in the position of being in competition with all independent refiners as to the possible supplies of butane?

Mr. HOWARD. Of isobutylene, you mean?

Mr. FULTON. And isobutylene from butane.

Mr. HOWARD. Isobutylene is not made from butane.

Mr. FULTON. I see.

Mr. HOWARD. The position with regard to the manufacture of butadiene is entirely competitive, Mr. Fulton. We have never had any monopoly whatever on the processes of manufacturing butadiene and never hoped that we would have.

Mr. FULTON. No; but butadiene is being made by a few relatively large companies, as I understand it, under new plants being erected with Government financing.

Mr. HOWARD. I think the list is now quite a long one. In addition to the list of oil companies, there is quite a long list of chemical companies who also make butadiene.

Mr. FULTON. That is made as one of their separate operations, but I was talking about oil companies. It would be what you might call the major oil companies; would it not?

Mr. HOWARD. There are two methods of getting it done. One is that the large companies, some of them at least, are making separate contracts. In the other cases groups of companies are organizing themselves into a single unit in order to carry out the operation for the Government. Sometimes there are large companies in the group as well as small ones. Just whatever seems to represent the minimum use of materials and the maximum efficiency.

Mr. FULTON. I noticed in another memorandum here—this is not one that you have introduced, but it is one by you, dated February 21,

1941—in which you refer to this question of the difficulties because of the lower cost of natural rubber. You are talking about the Government's program on synthetic rubber. I quote:

There may also have been some difficulty in getting the full butadiene requirements on firm contract basis as contemplated under the plan. On top of these inherent difficulties, Sir John Hay, representing the British Rubber Control, has been very persuasive in his arguments that the production of synthetic rubber is uneconomical, that the construction of plants will impose a drain on the American productive power at a time when it is badly needed, and that in any case the plants could not be completed until the emergency is past. In view of the above situation, Mr. Schram admitted last Tuesday that the rubber program of the Reconstruction Finance Corporation is in a state of suspended animation and that it is impossible to say when any action may be taken.

Could you expand on the meaning of that, Mr. Howard?

Mr. HOWARD. No, sir. I would like to point out, in justice to the gentlemen mentioned there, that that is hearsay on my part, and Sir John Hay never said any such thing to me. I must have believed it to be true or I wouldn't have said it, but I certainly wouldn't like to stand responsible for that quotation from his remarks.

The CHAIRMAN. His interest, of course, was in the rubber that comes from trees and not in synthetic rubber.

Mr. HOWARD. Sir John Hay was a representative of the International Rubber Regulations Committee, Senator Truman.

The CHAIRMAN. That is right.

Mr. FULTON. And in fairness to you, you took a very definite position against that, did you not, saying:

The only thing which could prevent the institution of a Government rubber-rationing control or mitigate the severity of such a control would be a definite demonstration in the United States of the ability of the country to produce its own requirements of synthetic rubber and successfully to use the synthetic product for tires within reasonable time.

That was your position at that time, was it not?

Mr. HOWARD. That was my feeling. That is correctly stated, Mr. Fulton; yes, sir.

Mr. FULTON. February 21, 1941.

Mr. HOWARD. I hope the records of this committee will show that that was a confidential communication inside of our own organization and that it only became public, in view of any criticism of anyone else it may contain, through the quite proper activities of this committee, but not through our voluntary act.

The CHAIRMAN. The record will show that nearly all of these documents were obtained in exactly the same way.

Mr. HOWARD. Thank you, Senator.

Mr. FULTON. Now, with respect to the document which you did submit, and which Mr. Farish read, I noticed that in reading it, he left out one paragraph, that is, he read one paragraph and then deleted and then went on with several more. I would like to know what the meaning was of the paragraph he left out, which reads:<sup>1</sup>

I am sorry to say that I believe the record of the handling of this synthetic rubber matter, up to this moment—

April 10, 1941—

has not been a creditable one.

<sup>1</sup> Exhibit Nq. 476, appendix, p. 4753.

Can you tell us, Mr. Howard, what you meant when you wrote that in the letter to Mr. Deupree, chief of the materials from Agriculture and Forest Products Section of the O. P. M.?

Mr. HOWARD. Well, all I can say is that that was my opinion at the moment, Mr. Fulton.

Mr. FULTON. Oh, I assumed it was your opinion, but on what was it based; if it had been a discreditable record at that time, to whose discredit was it, and for what reasons?

Mr. HOWARD. Not the personal discredit of anyone, but to the discredit of the Government of the United States, for apparently it had not been able to get its war preparation effort organized well enough so that the job that everyone seemed to agree ought to be done could actually be done as fast and efficiently as private industry, perhaps, might have done the same job if it had the same opinion.

The CHAIRMAN. That was in the hands of the Office of Production Management, which was run almost entirely by big business, wasn't it?

Mr. HOWARD. Well, Senator, it seems to have passed through the hands, first, you will remember, of the Army and Navy themselves, and they didn't have legislative authority to do anything about it. Then it passed through the hands of the Advisory Commission to the Council on National Defense.

The CHAIRMAN. If they lacked legislative authority, all they needed to do was to ask for it. We gave them all the powers they asked for. They never asked for any powers necessary to carry on this war effort that the Congress hasn't given to them and given them the funds to carry it out with, since 1940.

Mr. HOWARD. Well, all I meant to indicate was at the moment they didn't have any power or any money, although they had the desire to do something. And from their hands it moved into the hands of the Defense Council. From the Defense Council's hands it moved into the hands of the O. P. M., which succeeded the Defense Council. And from there it moved into the hands of the R. F. C., where it was finally and effectively taken care of.

Mr. FULTON. I was simply trying to ascertain whether your opinion was based on a theory that there was general muddling through of a number of different agencies handling it or whether any one agency was the one that you thought had had the discreditable record.

Mr. HOWARD. My opinion was based on generalities, and no specific criticism or thought of criticism against any individual or any single agency.

Mr. FULTON. On April 15, 1941, reading from another letter of yours to Dr. Weidlein, I notice you say:<sup>1</sup>

If, on the other hand, we relied upon the "paper preparation" theory and did nothing but prepare some engineering plans during the next 6 months, I do not think it would be at all reasonable to expect the new industry to get on its feet at the designed capacity within anything less than 2 to 2½ years after the go-ahead order was given.

That was, I think, written by you in protest at the rather limited program that was then under contemplation; was it not?

Mr. HOWARD. There is a great deal of correspondence, I am sure, that you have, Mr. Fulton, that shows that we didn't believe the re-

<sup>1</sup> See Exhibit No. 477, appendix, p. 4754, at p. 4755.

duction of the 40,000-ton program to a program of four shadow plants, each with capacity for only 2,500 tons, was a wise decision. From that conclusion of ours, we succeeded in getting—or at least we or others succeeded in getting—the R. F. C. to reverse itself very soon.

Mr. FULTON. On that I noted that in September, some 5 months later, the Rubber Reserve instructed you to suspend all work on your butadiene project, which you, of course, did not do, but did they reverse their position on this 2,500-ton matter before Pearl Harbor?

Mr. HOWARD. Oh, yes, sir. They had reversed that position some time quite early in 1941. I am sure before the middle of the year they had reestablished their minimum program at 40,000 tons.

Mr. FULTON. And it destroyed the shadow program of four 2,500-ton plants?

Mr. HOWARD. They enlarged it back up to the place where it had started.

The CHAIRMAN. Senator O'Mahoney, did you have a question you wanted to ask?

Senator O'MAHONEY. Mr. Chairman, I hesitate to trespass upon the good nature of this committee and of the witnesses. I appreciate the fact—

The CHAIRMAN (interposing). I want to say to the Senator from Wyoming that he was personally invited to attend the meetings of this committee by the chairman, on account of the fact that he knows more about this patent set-up, from the T. N. E. C., than anybody else in the Senate. I invited him to appear, and if he wants to ask a question, he is at liberty to do so.

Senator O'MAHONEY. Mr. Chairman, may I say that I feel that we are all much more concerned in the future than we are about anything that has transpired in the past. Certainly that is true with respect to the questions that I have propounded and that I intend now to ask. I am not concerned at all with trying to embarrass the witnesses, but solely with trying to discover whether or not the road from here on is clear.

May I, therefore, ask Mr. Howard, since he was good enough to present to the committee just now two samples of synthetic rubber, whether he feels that there has now been made to the Government a full disclosure of all of the factors that go into the manufacture of synthetic rubber.

Mr. HOWARD. We have given to the Government everything that they have asked for, so far as I know, Senator, and if they want anything else, they have only to respond to our invitation to ask for whatever else it is they want.

Senator O'MAHONEY. Obviously, Mr. Howard, that doesn't go quite far enough. If you recall the Werkenthin testimony which was developed yesterday, a chemist in the employ of the Navy went to the K plant and he didn't get everything.<sup>1</sup> So, therefore, I ask you the question, Do you think there has been a complete disclosure now of everything that Standard knows with respect to these various processes for developing synthetic rubber?

Mr. HOWARD. I am glad you brought up the Werkenthin episode, Senator. I would like to speak to that just a moment. In my 20 years of direction of the research activities of my company, that is

<sup>1</sup> Supra, p. 4391 et seq.

the first instance that I can recall in which a civilian employee of any of the services of the Government or even a staff officer—a uniformed officer—has ever asked permission to visit experimental manufacturing plants operated by our company when the sole interest of the Government in that matter was the purchase of the product. That was the situation which confronted the organization when Mr. Werkenthin called. It was so unusual they, frankly, didn't know what to do about it. To the best of my knowledge, in all of the work done by the whole Government organization on the synthetic rubber program, no Government representative has ever since or before asked permission to visit any experimental manufacturing plant, until the organization of the pooled committee, presided over by Dr. Weidlein last December.

Senator O'MAHONEY. Of course, one of the reasons that the country is in danger of a rubber famine is that sufficient interest of that kind has not been exhibited by all persons concerned with the Government.

Mr. HOWARD. I don't agree with that at all. Senator O'Mahoney. The theory of the R. F. C., which I believe is entirely correct, is that the Government itself is incapable of carrying on the production of synthetic rubber. It has only one course to follow, and that is to set up the machinery through which the industry of this country can pledge its reputation and its skill to the production of the Government's requirements, and the Government itself has never in this whole program of hundreds of millions of dollars assumed any responsibility, technically, and with regard to manufacture on its own account.

Senator O'MAHONEY. Now, Mr. Howard, of course I am not urging Government operation of these plants at all. I think that your response is just a little bit wide of the mark. My question to you was, do you now believe that there has been a full disclosure to the Government so that the Government may use these processes or have its agents use the processes for the full production, the complete production, of synthetic rubber?

Mr. HOWARD. I should say that the disclosures and the offers of disclosures which have been made to the Government are sufficient for any purpose that they would care to use them for, Senator.

Senator O'MAHONEY. So that there are some offers of disclosure which have not as yet been made?

Mr. HOWARD. So far as I know, they have never accepted the invitation from us to go over any of our manufacturing plants. I think they did make a visit to our Baton Rouge laboratories a little while ago—some of their representatives—but they have never yet visited our other laboratories in Bayway.

Senator O'MAHONEY. Now, of course, it is clear from the testimony already given that not all of the technical knowledge which I. G. had with respect to these processes was known to you. That is correct, isn't it?

Mr. HOWARD. Yes, sir; the war intervened before we were in a position to get all their information.

Senator O'MAHONEY. I am not interested in the reasons why we didn't get it before. I am just interested in the fact. So my question to you is, do you now have the full know-how on the I. G. patents which have been assigned to you?

Mr. HOWARD. Yes, sir; we have the know-how on all the patents; all that we can use.

Senator O'MAHONEY. Is it available to the Government?

Mr. HOWARD. Yes, sir.

Senator O'MAHONEY. So that from now on, those of us who are Members of Congress can expect Standard Oil Co. to cooperate fully with all those who have entered into contracts through the R. F. C., which was announced by Mr. Jones today, for the development of this synthetic rubber?

Mr. HOWARD. Absolutely and without reservation, Senator; yes, sir.

Senator O'MAHONEY. I am awfully glad to have you say that, Mr. Howard, because if that cooperation is forthcoming now and you produce the rubber, the record of Germany shows that it can be produced, you will be in a position of putting an end to the developing rubber famine and everybody in the country will be in your debt, so that is why I said I am concerned about the future. I am glad to have you say to us that at the present time there is a disposition at least to make a full disclosure with respect to these processes. Is that right?

Mr. HOWARD. Since the organization of the Technical Committee on Rubber in December of 1941, there has been absolutely complete cooperation on the production of a buna rubber and on March 11 Mr. Farish offered publicly, which we confirmed by letter to the R. F. C., our willingness to license anyone to manufacture butyl rubber during the period of the war.

Senator O'MAHONEY. That is a perfectly satisfactory and encouraging answer, Mr. Howard. The only question that remains in my mind is to what extent the cartel arrangement which you had will operate to create dissatisfaction after the war. Before we proceed with this, let me cite the record. I quote first from the letter of 1929 that was signed by Mr. Teagle.

Mr. FARISH. Senator, may I interrupt? The consent decree that has been signed wipes out any obligations of any kind.

Senator O'MAHONEY. Well, I want that to be clearly stated here in the record.

Mr. FARISH. I think it has been stated a dozen times that the consent decree has wiped out all obligations in connection with any of these I. G. patent contracts.

Senator O'MAHONEY. All right. Let's make that specific by tying it down to the contracts which your organization has made. Here was the coordination agreement of 1929, signed by Mr. Teagle. I read this paragraph:<sup>1</sup>

In the event the performance of these agreements or of any material provisions thereof by either party should be hereafter restrained or prevented by operation of any existing or future law, or the beneficial interest of either party be alienated to a substantial degree by operation of law or governmental authority—which I assume will include the consent decree—

the parties should enter into new negotiations in the spirit of the present agreements and endeavor to adapt their relations to the changed conditions which have so arisen.

That was the understanding of 1929.

<sup>1</sup> See Exhibit No. 361-A, appendix, p. 4572.

Ten years later we have the understanding of 1939, from which I quote. This is the so-called Hague agreement:<sup>1</sup>

If it shall appear from \* \* \* reports that the division of territory of exclusive ownership between the parties as herein effected have not been equitable in its financial results as judged by the agreement of September 30, 1930—

which I understand was based on the 1929 agreement—

then the parties shall correct the inequity in such manner as may seem most fair and advantageous at the time.

Then:

Pursuant to the foregoing, I. G., the Standard Oil Development Co. and Jasco shall make or cause to be made any formal assignments or execute any further instruments necessary to put into effect the present readjustment and any required future readjustment of the rights and interests of the parties to the agreement of September 30, 1930.

Now, I turn to the letter dated February 20, 1941, which was sent to you. It is labeled "Confidential."<sup>2</sup>

DEAR FRANK: AS intimated to you briefly the other day, Dr. Ringer came to Paris to see me before I left end of January, and asked me to give you the following message in regard to cable which he had received, I believe, from your good self:

Then quoting the cable:<sup>3</sup>

"Jasco cable will be difficult but one underlying point is that Jasco contract has not been wiped out as agreed whatever done the final financial outcome original intention of old Jasco agreement should govern."

Now, finally, I want to quote a paragraph from the agreement of November 9, 1929, upon which the complaint which resulted in the consent decree was based. I quote this paragraph. This agreement, of course, was signed on behalf of I. G. by Schmitz and von Knieriem, on behalf of Standard by W. C. Teagle.<sup>4</sup>

Whereas neither party has any plan or policy of so far expanding its existing business in the direction of the other party's industry as to become a serious competitor of that other party, but each recognizes that certain overlapping of activities will exist.

Now, I have cited these various documents merely for the purpose of laying the basis of asking you the question whether in your opinion now, after all this testimony, this committee would be justified in reporting to the Congress that there will be no readjustment by Standard with I. G. following the war which will in any way militate against the successful development of the processes and patents which you now say are being made available to the Government for the full utilization of synthetic rubber and development.

Mr. HOWARD. I think that is a perfectly sound statement, Senator. Senator O'MAHONEY. I tried to make it fair and sound.

Mr. HOWARD. I mean your conclusion.

The CHAIRMAN. Has any other Senator any question?

Senator O'MAHONEY. You merely complimented me on my statement. I want the answer, Mr. Howard.

Mr. HOWARD. I mean that your answer is entirely correct.

<sup>1</sup> See Exhibit No. 366, appendix, p. 4583.

<sup>2</sup> See Exhibit No. 425, appendix, p. 4651.

<sup>3</sup> Ibid.

<sup>4</sup> Exhibit No. 362, appendix, p. 4572, at p. 4573.

Senator O'MAHONEY. I didn't make the answer. I want you to make the answer. Let's have it on the record here.

Mr. HOWARD. The answer is yes.

Senator O'MAHONEY. Then we can say that this arrangement is not merely suspended during the war.

Mr. HOWARD. We should be very glad to file a consent decree under which all relations with the I. G. under those contracts are brought to an end. I have forgotten the terms, but that is the substance of it. They are all terminated. Every obligation of either party to the other in the agreements in question has been terminated.

The CHAIRMAN. That decree has already been made a part of the record.

Senator O'MAHONEY. Then you did not feel yourself to be under any obligation by reason of the contract of 1929 or the Hague agreement of 1939 to make readjustments after the war?

Mr. HOWARD. No, sir; we do not.<sup>1</sup>

Senator O'MAHONEY. Thank you very much, Mr. Chairman. I have concluded.

The CHAIRMAN. Has any other Senator a question?

Senator KILGORE. I wanted to ask one question. When was the butyl tire that you have there made? Do you know?

Mr. HOWARD. I should think in the summer or fall of 1940—probably in the fall. I think that is one of the first batch that was made. I am not sure.

The CHAIRMAN. Mr. Clark had a question he wanted to ask.

Mr. CLARK. Mr. Howard, a few moments back, when Senator O'Mahoney asked about making a full disclosure of all the know-how necessary for the Government's effective experimentation and production of synthetic rubber, you answered and said that you gave them all that they asked for. Did you volunteer any information that they may have overlooked?

Mr. HOWARD. Oh, yes, sir. We have volunteered to them everything that we thought was at all interesting.

Mr. CLARK. That you thought was necessary?

Mr. HOWARD. Everything we thought would be of any interest to them.

<sup>1</sup> Mr. Howard subsequently submitted the following statement in this connection:

"Lest there be some misunderstanding, I should like to explain the origin of the so-called coordination agreement of 1929, a paragraph of which has just been quoted. The 1929 agreements were to run for a period of 17 years and to apply to a large number of existing and future patents in all countries of the world. They were also to cover the conditions under which we would sell in Germany the synthetic gasoline made there by the I. G. from coal. The I. G. suggested having all these agreements made in the German language and to include a provision that they were to be interpreted according to the laws of Germany. We suggested making all agreements, even those to be performed wholly in Germany, in English, and interpreted according to either the American law or the English law. Further discussion of the legal situation as regards the interpretation and enforcement of these agreements throughout the world led the lawyers for both parties to the conclusion that it simply was not possible to provide in a fair way and in legalistic forms for all the contingencies as respects litigation between the parties which might arise under these contracts, and that the only thing that could be done was to rely upon the good faith of the parties and their desire to deal equitably and fairly with one another.

"The I. G. amplified this simple statement into a written formula, the so-called coordination agreement." It can be reduced to the simple statement that it expressed the desire of both parties to deal fairly and equitably with one another according to the intention of the original agreements. With this "good faith letter" of their own devising (to which we saw no objection) to tie to the Germans consented to have the actual contracts, even those to be performed wholly in Germany, made in the English language, and the parties dropped any further effort to deal with the complicated international law questions involved in contracts between citizens or subjects of different countries which are to be reformed partly in both of those countries and partly in other legal jurisdictions throughout the world."



Mr. CLARK. That would be in the Government's interest. Thank you.

The CHAIRMAN. Mr. Farish, the subcommittee of which Senator Herring was chairman are of the opinion that the private hearings held on March 23, from pages 79 to 131, should be made a public document. Have you any objection to that?

Mr. FARISH. I welcome it, Senator. I was going to ask that, but somebody told me it wasn't the custom of the committee to do it, so I didn't make the request. I would be delighted to see it done.

The CHAIRMAN. It will be made a part of the record.

Mr. FARISH. That is my testimony, and I am glad that the testimony of the other gentlemen will be made a part of the record.

The CHAIRMAN. This is that part of the record which refers to the Senate hearing. We will make the same request of the rubber companies when they appear before the committee.

Mr. FARISH. You mean the testimony of Mr. Collyer and Mr. Litchfield is not included?

The CHAIRMAN. It will be after they have had a chance to be heard before this committee.

Mr. FARISH. I beg your pardon.

(The document referred to was marked "Exhibit No. 481" and is included on the appendix on pp. 4761-4776.)

The CHAIRMAN. The committee will take a recess until 10:30 tomorrow morning, when we will hear some witnesses with respect to gasoline and oil and the South American trade, and we will appreciate it very much if the Standard Oil Co. would like to be represented at that hearing.

Mr. FARISH. Senator, are we excused from this particular meeting?

The CHAIRMAN. You are excused.

Mr. FARISH. Senator, may I get clear that statement? This is new, and I want to be sure if you want somebody here from my company.

The CHAIRMAN. You are invited to be present, but you are not required to be here.

Mr. FARISH. Thank you.

(Whereupon, at 5 p. m., this committee recessed until 10:30 a. m. Friday, April 3, 1942.)



# INVESTIGATION OF NATIONAL DEFENSE PROGRAM

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FRIDAY, APRIL 3, 1942

UNITED STATES SENATE,  
SPECIAL COMMITTEE TO INVESTIGATE THE  
NATIONAL DEFENSE PROGRAM,  
*Washington, D. C.*

The committee met at 10:37 a. m., pursuant to adjournment on Thursday, April 2, 1942, in Room 318, Senate Office Building, Senator Harry S. Truman presiding.

Present: Senators Harry S. Truman (chairman), James M. Mead, Harold H. Burton.

Present also: Mr. Hugh A. Fulton, chief counsel; Mr. Charles P. Clark, associate chief counsel.

The CHAIRMAN. The committee will come to order.

Mr. LaVarre, will you take this seat and be sworn, please? Do you solemnly swear to tell the truth, the whole truth, and nothing but the truth in the testimony you are about to give this committee, so help you God?

Mr. LaVARRE. I do, sir.

## TESTIMONY OF WILLIAM LA VARRE, CHIEF OF AMERICAN REPUBLICS OFFICE OF THE DEPARTMENT OF COMMERCE

### SALE OF GASOLINE BY STANDARD OIL CO. (NEW JERSEY) TO LATI<sup>1</sup>

The CHAIRMAN. Mr. LaVarre, will you please give your full name and connections for the record?

Mr. LaVARRE. My name, sir, is William LaVarre. I am the Chief of the American Republics Office of the Department of Commerce. I came to Washington in May and offered to volunteer with Mr. Jesse Jones, and I have been here ever since.

Mr. FULTON. What is your experience, Mr. LaVarre, particularly with respect to South America?

Mr. LaVARRE. I went to South America first just at the end of the last war and I have traveled through all the countries of Latin America, the interior as well as the cities. I have spent over 15 years in Latin America. During the last 4 years I specialized on studying German, Italian, and Japanese activities in South America, Central America, and the Caribbean.

The CHAIRMAN. Are you familiar with the Lati Airline?

Mr. LaVARRE. Yes, sir; I am.

The CHAIRMAN. What is it?

Mr. LaVARRE. The Lati Airline is a line that was established under the patronage of the Nazi Government as an outcome of the confer-

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<sup>1</sup> In this connection see also testimony, supra, pp. 4344-4345 and 4362-4363.

ence at Stuttgart in 1939. At that time, Hitler had called all of his German agents to Germany for a conference and they reported that the Germans were not getting so far in political relations in Latin America, and they decided to give the Italians the opportunity of starting a trans-Atlantic airway, and that line was called Lati, to make it simple, and it runs from Rome. It started to run from Rome, Italy, through Spain, down the coast of Africa, using the Cape Verde Islands as a base, then across from Dakar to Brazil, and then to Argentina.

The CHAIRMAN. Was that the only method of communication by air with Europe during the last 2 years?

Mr. LAVARRE. During the last 2 years; yes, sir; since the Germans went into Holland.

The CHAIRMAN. That air line was not subject to the British blockade, was it?

Mr. LAVARRE. No, sir; that was a method by which people could escape the British blockade. By having an air line, you didn't have to go on ships and be searched. It was the only method by which the blockade could be escaped for people and for cargo.

The CHAIRMAN. That is, German and Italian spies could be transferred back and forth between Brazil and the European Continent without interference?

Mr. LAVARRE. Not only between Brazil and Europe but between the United States and Europe by way of Brazil. They couldn't come across the Atlantic; the propaganda couldn't come across the Atlantic but it was sent to Brazil and brought up through Central America to the United States.

The CHAIRMAN. Have you a list of some of the people who made that trip?

Mr. LAVARRE. Yes; I have what is probably the most notorious record of enemies that ever traveled on any line. Shall I read some of them into the record?

The CHAIRMAN. I will appreciate it if you will read it into the record. If you like, you can make the whole document a part of the record.

Mr. LAVARRE. I will submit this as an exhibit.

(The document referred to was marked "Exhibit No. 482" and is included in the appendix on p. 4776.)

Mr. LAVARRE. I may say that these are all official records of the United States Intelligence Service, collected either by the Naval Intelligence, the Army Intelligence, State Department Intelligence, or the men of the Reconstruction Finance Corporation in South America.

I have such men as Arnulf Fuhrmann, who was the Gauleiter in charge of all South America under Hitler, and his specialty was anti-Semitic propaganda. He went back and forth; back and forth.

I have Dr. Walter Becker, whose specialty was commercial and trade propaganda.

Dr. Otto Klein, whose specialty was industrial propaganda.

Erich von Ribbentrop, a nephew of the other von Ribbentrop. His specialty is diplomatic work.

We have Julius Holzer, who is the chief Storm Trooper for Latin America, sent out to organize the small bands throughout the small areas.

And Rudolf Meissner, who is the chief of all Gestapo for South America.

Paul von Bauer, who is in charge of all aviation for the German Government in Latin America.

Theodore Schumacher, in charge of propaganda and subsidies for newspapers, magazines, and radio.

Dr. Rudolph Paetz, in charge of propaganda and working among schools.

General Wilhelm Faupel, in charge of all military sabotage and activities on the east coast of South America.

General Hans Kundt, in charge of all military sabotage on the west coast of South America.

Alfred Muller, especially assigned to work with the Argentine Government.

Edgar von Spiegel, the agent in charge of all German activities in the Caribbean.

Arthur Dietrich, the agent in charge of all propaganda for Latin America.

And Dr. Hans von Cossel, in charge of all cultural relations.

In addition to that, various German corporations had passes on this air line. The fee for traveling to Europe was \$2,000, but since they were all Government officials, nobody had to pay anything, and since the freight was all Government freight, there was very little money ever passed through various hands.

I would like, without going into great detail, just to submit a list of the most notorious people and the most notorious companies in South America which sent their people back and forth to Europe, and also which used this air line to get things from Europe and North Africa to the United States—propaganda especially.

Senator BURTON. May I get this clear: Is that a Government-owned air line?

Mr. LAVARRE. Yes, sir. It was started with German money, German engineering technique, but run by Italians and under the Italian Government.

Senator BURTON. It is the German Government and Italian Government that are operating it, not individuals?

Mr. LAVARRE. That is right; the Government.

The CHAIRMAN. Where did these lines get their fuel to operate?

Mr. LAVARRE. The Lati Airline secured the type of fuel that it had to have to make that terrific jump across the Atlantic, 1,680 miles with a heavy load—they had to have gasoline that had between 87 and 100 octane, and the only place they could get that gasoline was from the Standard Oil Co. of New Jersey and its subsidiaries in South America.

The CHAIRMAN. What effect, if any, did blacklisting have on the delivery of this gasoline?

Mr. LAVARRE. The blacklisting was a method of last resort. We put the blacklist in effect to catch certain corporations which refused to act voluntarily. We had a record of 89 percent of all the American corporations which, as soon as they were talked to and were asked not to do things that would be contributory to Nazi or Japanese or Italian propaganda, automatically ceased. Some of them lost a good deal of money by breaking their contacts. Finally, we had to get out a blacklist to catch the ones that refused to do it voluntarily, and that blacklist just recently caught them, and the Standard Oil Co. could not sell any more when the blacklist came out.

The CHAIRMAN. Were the attachés of the Army and Navy and our State Department familiar with this situation?

Mr. LAVARRE. Yes, sir. The record is very complete, with reports coming in from Intelligence officers, and most businessmen were saying this ought to stop, that the Latin Americans couldn't understand how we officially could say we wanted to rid South America of Nazi German agents and still provide the only means by which they could go back and forth.

Mr. FULTON. Do you have any documents to show that?

Mr. LAVARRE. Yes, sir; I have some documents, if I may submit them, from the Intelligence files. I have the permission to do it, and I will read a certain few parts of them. I won't take the time to read all of it.

The CHAIRMAN. Proceed.

Mr. LAVARRE. To give you an idea of the vigilance with which this was watched and how many people tried to stop it and couldn't, I have as an exhibit a memorandum dated October 16, 1939, addressed to the Department of Commerce by Mr. A. W. Childs, assistant commercial attaché of Brazil in Rio de Janeiro.

(The memorandum referred to was marked "Exhibit No. 483" and is included in the appendix on p. 4777.)

Mr. LAVARRE. He reports that on October 13, 1939, there arrived in Rio de Janeiro a Colonel Attilio Biseo, Italian Army aviation officer now functioning as director of Lati, the new Rome-Rio air line; and he says that Colonel Biseo was in charge of a flight of three planes, one flown by Bruno Mussolini, which visited Brazil in early 1938. The three planes were called Green Rats.

He says that [reading from Exhibit No. 482]:

Colonel Biseo is here now to make final arrangements for the inauguration of the new line which is scheduled for mid-November. The new company will be called Linhas Aereas Transcontinentaes Italianas—

that has been abbreviated simply to Lati—

En route to Brazil, the ships will call at Rome, Malaga, Villa Disneiros, Ilha do Sal (Cape Verde), Recife, and Rio de Janeiro.

I would like to put this in the record because this shows that officially the Government's agent in Brazil notified the Government that this line was going to start and put us on record that this was going on. In other words, they didn't start it without our knowledge.

I have a complete record which has been assembled showing everything that traveled on any Lati air line from December 1, 1940, to May 31, 1941. It is audited so that you can see the vital materials which the Germans obtained and the propaganda which they sent back.

(The document referred to was marked "Exhibit No. 484" and is included in the appendix on p. 4778.)

Mr. LAVARRE. I would just like to read a few phrases:

Available records indicate that during the 6-month period under consideration Lati planes made 22 westward Atlantic flights and 23 eastward flights. The composition of the aggregate of freight shipments covered by accessible manifests for this period is set forth in the following tables.

And then there are the tables and list.

Coming westward, which is coming to South America, were such things as 2,365 kilos of books—propaganda books; 2,360 kilos of concentrated chemical and pharmaceutical products, addressed, by the way, to the Sterling Products Cos. in Latin America. There were 860 kilos of films, known as horror pictures, the pictures which they sent out to make the Latin Americans scared so they wouldn't go into the war. There were 660 kilos of electrical materials. Now, here comes a good one. Hitler says that gold is useless, but he sends by Lati, at \$20 a kilo freight, 240 kilos of gold and silver jewelry which he is selling to the Brazilians, having taken it away from the people he conquered, in order to get Brazilian exchange.

He has 15 kilos of medals being sent to give to Latin-American officials who would accept them, a few newspaper publishers who wanted them; and he has especially in these medals, medals of Dr. Funk who is the great economist who is helping Hitler win the war—or lose it.

Going to Germany, however, the thing that is probably the most dangerous, is 3,771 kilos of mica. They couldn't win the war, they couldn't even fight the war if they hadn't had some mica. Semiprecious stones, 343 kilos, just in those 6 months. What do they do with 343 kilos of semiprecious stones? They were bought in Brazil very cheap—amethysts and things like that—and they took them back to Germany, had the poor Belgians cut them, paid them nothing for doing it, probably, then sent them back to South America and sold them for a lot of money, thereby making some more exchange to pay off their bills.

And they had three kilos of diamonds, the carbonados which are very valuable for grinding rifle and gun bores.

There were 183 kilos of platinum, in just 6 months. I am going to put into the record the entire career of this line, if I may. The statement of the investigator is that [reading from Exhibit No. 483]:

On crossing to the Western Hemisphere, Lati's loads are principally propaganda (for example, books, films, etc.) and commodities particularly suitable for securing foreign exchange and clearing credits in the Americas (for example, gold and silver objects, chemicals, electrical materials, etc.) On crossing to Europe, Lati carries cargoes largely composed of compact and essential war materials (that is, mica, platinum, industrial cutting crystals).

The report says:

The composition of these loads is not determined fortuitously by the response of European and South American exporters to Lati freight rates,—

which I have given you—passenger rates, \$2,000; freight rates a little over \$10 a pound—

but that shipments are controlled in such a manner that the appropriate balance between propaganda and commodities is ensured for each load.

In other words, it is under Government control as to what goes into the planes. We know that very well because no one could get on those planes whom the German Government didn't want on them.

The CHAIRMAN. What was the attitude of the Department of Commerce toward Standard's furnishing gas to this line?

Mr. LAVARRE. Well, when this started, I don't know anything about the attitude of the Department of Commerce. There was a different Secretary. Since it has been going on, the Department of Commerce has no authority and can't do anything. I can't speak for the De-

partment officially, Mr. Jones has to do that, but I can speak from my own experience, and that is that the Department of Commerce has no authority; it couldn't do anything about this thing and it just simply had to sit by and watch it go on, if it had continued.

The C. A. B. (Civil Aeronautics Board) is not under the Department of Commerce. The Civil Aeronautics Administration is, but the Board, which is the policy-forming body, is not a part of the Department of Commerce.

I might say that although the Department couldn't act officially, it has acted very quickly through the Reconstruction Finance Corporation. Mr. Jones stepped in as fast as he could and is cleaning the Germans out, but he couldn't clean the Lati Air Line out because it went from Brazil across the Atlantic. He could only clean up where he could supply another air service quickly, which he has done in Bolivia, Peru, and which he did also in Ecuador and Colombia, as you remember. But we needed another air line that would parallel the Italian air line and we were not able to obtain it.

Mr. FULTON. How did the gasoline reach the Lati Air Line?

Mr. LAVARRE. The gasoline reached the Lati bases in tremendous quantities before it was necessary even to shut it down—they had huge stock piles on hand—by tankers which breached an agreement. They were to bring the gasoline under inspection from Aruba, but they also brought a lot of gasoline from other places, including New Jersey, and from Talara, Peru; and they were all German tankers with German crews, German captains.

Mr. FULTON. Owned by whom?

Mr. LAVARRE. Owned by the Standard Oil Co. of New Jersey and floated under the German flag until the British blockade, and then transferred to the Panamanian Government and floated under the Panamanian flag as long as Arias was the president. Of course, now they are back under the American flag.

Mr. FULTON. And was there any other trans-Atlantic service to South America that could have passed the blockade?

Mr. LAVARRE. Yes, sir, there was the German line, and there was the Zeppelin service. I would like to speak a minute about that Zeppelin service because it backs up my own personal belief that we could have stopped this thing just as we stopped the Zeppelin. It was very easy for us to stop the Zeppelin service because they had to have helium and the United States Government which owned the helium simply refused to sell them any, and therefore the service went out of existence, and that is why the Germans then went into using large Dornier flying boats to come across, because they didn't need helium for airplanes; they could use gasoline and they knew they could get all the gasoline they wanted from the Standard Oil Co. Otherwise, there would have been the Zeppelin service.

Mr. FULTON. When was it that the Lati Air Line was finally put out of business?

Mr. LAVARRE. The Lati Air Line was put out of business—I think it was in December, just before Christmas, but I would like to give you the exact date. May I hold that? I think it was just this last Christmas.

The CHAIRMAN. You can put that date in the record.

Mr. LAVARRE. I have a document here that shows it. It was put out of existence by the fact that they were put on the blacklist.



They were threatened twice—the Standard Oil Co. was threatened twice if they didn't stop selling gasoline that of course the State Department could put them on the blacklist. They finally did, but the reason why the Lati line stopped was that finally they couldn't get any gasoline, so then the line stopped and the Brazilian Government was then able to nationalize and take over the planes.

Mr. FULTON. Had you any conferences in South America with any officials of the Standard Oil Co.?

Mr. LAVARRE. Yes; I have had many.

Mr. FULTON. Were they apprised of the nature of the passenger list and the cargo list of this air line?

Mr. LAVARRE. Yes. A good many of the individuals were of some service to the Naval Intelligence in bringing them information on what was flying on these Italian planes, that is as individuals, but so far as the policy was concerned, they always told me that they couldn't do anything about it, that it was run from New York City, that they got their orders and had to do what they were told.

Mr. FULTON. I notice in the list of companies that I. G. Farben is one of the companies you list as having agents who had passes.

Mr. LAVARRE. Yes; anybody with that firm, with a certificate, simply got on the air line and took preference. He had what you might call an A-1 priority to get on a Lati Air Line.

Mr. FULTON. And then you have, under the heading "Auslands Gestapo," some 25 names. Are they some members of the Gestapo?

Mr. LAVARRE. Yes. I am a little amused that these people thought they were getting away with it, in that practically nothing they did wasn't known. The only thing was we couldn't stop it. I personally couldn't stop it. I started writing about it in reports in 1937. I would like to put a few in the record if I may. None of us could stop it. It was a circumstance; the only way you could stop them was to stop their obtaining of gasoline, and we couldn't do it.

Senator BURTON. You couldn't stop them as long as they were obtaining gasoline from Standard Oil, but as soon as they could no longer obtain gasoline from Standard Oil they stopped?

Mr. LAVARRE. That is right. They flew twice after we stopped their supply of gasoline.

Senator BURTON. Therefore the propaganda agents moved back and forth from Germany to South America as long as Standard Oil furnished them gasoline?

Mr. LAVARRE. That is right.

Senator MEAD. I am a little confused, because if I remember the Standard Oil's testimony, they very readily and spontaneously conformed with every Government requirement.<sup>1</sup> Do I understand you to say that some firms withdrew their supplies voluntarily quite some time ago from these Nazi firms, and that Standard Oil was not in that list that volunteered to withdraw their supplies?

Mr. LAVARRE. Yes, sir. We had the Intelligence reports on every agent and all of the Axis business. We took 6 months and had men go around the United States calling on the president of every concern in Latin America, explaining to him what we had found, either that his employee was a German or a Nazi sympathizer, or he was in the em-

<sup>1</sup> See *supra*, p. 4362 et seq.

ploy of and giving money to the German embassies; and the record shows that 89 percent of all the American businessmen who were called on voluntarily stopped immediately, in some cases at big losses because the Germans were good firms; they could sell them. As Sterling Products always said, they sell better than anybody else.

But some of the American businessmen, 89 percent of the American businessmen, were willing to take the loss and find some other agent and build it up again.

Senator MEAD. Was Standard in that 89 percent?

Mr. LAVARRE. No, sir; Standard was in the other.

Senator MEAD. Did I understand you to say a moment ago that you warned them on several occasions?

Mr. LAVARRE. Twice.

Senator MEAD. And they still persisted?

Mr. LAVARRE. Yes.

Senator MEAD. That doesn't seem to conform with the most cooperative spirit expressed by the Standard witnesses to the committee.

Mr. LAVARRE. My only experience is, I have spent many years in Latin America and have seen Standard Oil operating in all the countries, and there is never any cooperation either with our foreign ambassadors or with the State Department or with the Commerce Department.

Senator MEAD. Never any cooperation?

Mr. LAVARRE. Never any.

The CHAIRMAN. Mr. LaVarre, you are going to have permission to put any document in the record that you choose, and Mr. Berle is here and I would like to have him testify, and then if the Senators want to call you back, they may.

Mr. Berle, will you be sworn? Do you solemnly swear to tell the truth, the whole truth, and nothing but the truth in the testimony you are about to give before this committee, so help you God?

Mr. BERLE. I do.

#### TESTIMONY OF A. A. BERLE, JR., ASSISTANT SECRETARY OF STATE

The CHAIRMAN. Mr. Berle, will you please state your full name and connection for the record?

Mr. BERLE. My name is A. A. Berle, Jr. I am Assistant Secretary of State. I have in charge, among other things, matters connected with aviation.

The CHAIRMAN. You heard the statements of Mr. LaVarre, Mr. Berle. I think you have some facts in connection with the attitude of the Standard Oil of New Jersey in connection with the Lati Air Lines and the South American cartel which I will appreciate if you will give us for this record.

Mr. BERLE. Thank you very much. For some 3 years prior to the outbreak of the war between the United States and Japan, the Department of State had been cognizant of the existence of Italian or German-controlled lines in South America. We had initiated a campaign to try to clear these lines out. Included among these lines were the line called familiarly Lati, which ran from Italy to Brazil, and the German-controlled line in Brazil which goes by the name of Condor. I mention the two together because one of the problems was

the interchange of stocks between these two companies. I mean by that, if Condor had gasoline, it could supply Lati, or vice versa.

By consequence, as will be seen, the problem rapidly became a problem of controlling the sale of gas and oil to both companies.

Early in 1941, and motivated by many of the facts which Mr. LaVarre has already brought out, plus some similar facts which the Department of State knew about, we went to work to bring under control the sale of gasoline and oil to Lati and to Condor. Specifically, the Secretary of State requested of Standard Oil of New Jersey that they make no sales to these companies except from New York or Aruba.

The CHAIRMAN. How early was this request made, Mr. Berle?

Mr. BERLE. This, if I recall correctly, was in March of 1941. I think the committee ought to bear in mind that at that time, there was no blacklist machinery; that that did not become available until July of 1941, so that at that time we were working on a purely voluntary basis, except in one aspect. The exception is that there was an export control law. The only way you could control sales of this kind was to endeavor to see that they would be made only from points within the United States or by American companies. In such case, you could apply the export control regulation. Accordingly, we requested that sales be made to Lati and to Condor only from American sources, which in practice meant shipment by Standard Oil of New Jersey from Aruba.

Mr. FULTON. Instead of from a subsidiary which would be a foreign corporation in Brazil?

Mr. BERLE. Yes. The other source by which these companies could have been supplied would have been the Brazilian subsidiary of Standard Oil. That was a Brazilian company, wholly outside the United States, drawing on supplies of oil from outside the United States, probably from Venezuela, or possibly from Peru, and thus outside the control at that time of any applicable law.

Mr. FULTON. It was that that the Secretary was trying to stop?

Mr. BERLE. That is what the Secretary was trying to stop.

We continued to be worried about the situation after this request and we requested and had a further conference with the Standard Oil officials on April 14, 1941. We had reason to believe—in fact, I believe the Standard Oil Co. had reported—that Lati and Condor were drawing supplies from the Brazilian subsidiary.

The Standard Oil Co. supported those deliveries with various arguments which, perhaps, needn't be gone into here, but the upshot of that conference was the following understanding between the Standard Oil Co. and the Department. They (Standard Oil) would supply Lati and Condor, if at all, only through their Brazilian subsidiary, but the Brazilian subsidiary would make no deliveries unless they were first approved by the American Ambassador in Rio. In other words, in an endeavor to control the situation better, the Department entered into an understanding with Standard Oil that they would make their deliveries to these Axis companies, if any, only from the Brazilian subsidiary, but that their Brazilian subsidiary would only deliver if it had been first O. K.'d by the American Embassy.

Senator BURTON. Was this in April 1941?

Mr. BERLE. This was on or about April 14, 1941.

Mr. FULTON. And you still had no power even to the extent of black-listing at that time?

Mr. BERLE. We had no power at that time. It was a voluntary agreement, this being the only method of control we had.

The committee will bear in mind that neither we nor, so far as I am aware, any agency of the United States Government at that time had any means of controlling the operations of a foreign subsidiary. By consequence, it seemed best to us to make an ironclad agreement, which we did.

I may add that we followed that up by sending instructions to the American Embassy in Rio to see to it that Lati and Condor should be required to use up the existing stocks of gas and oil which they had on hand; that is, that they should be required to draw down the rather large stocks they had accumulated rather than to be allowed to replenish or build up their stocks.

We gave to the Ambassador instructions to go into the matter at the time when their stocks should be drawn down so that neither company had more than 30 days' supply ahead.

I ought to say that at that time we likewise took up the possibility of completely cutting off these companies, either by cooperative action between the Government of the United States and the Government of Brazil, or by any other means which we might be able to figure out. We there ran into a political difficulty of which we were obliged to take cognizance. Condor controls or flies 70 percent of the route mileage of the air communications of Brazil. Since Brazil does not have a highly developed road system or a highly developed railroad system, it will be seen that that is a very large proportion of the internal communications of Brazil, and the Brazilians were not philosophical about having their internal communications disrupted, and we considered that we had to put ourselves in a position to supply to them a substitute service.

Senator BURTON. Would you state is the Condor owned and operated by the German Government or by a private company?

Mr. BERLE. The Condor is to all intents and purposes owned and operated by the German Government. It is nominally, of course, a private company, but under complete Nazi control.

I ought to correct that to read it "was" then under German control. The reason for correcting it is that subsequent to Pearl Harbor the Brazilian Government took over the entire company, lock, stock, and barrel, so that, although the name is the same and remains the same, Condor is now a Brazilian company. It was not at that time.

I should like to make it plain that the cooperation between Lati and Condor was so complete that we considered we were dealing with substantially the same interest whenever either of the two companies came into focus. This arrangement was made with Standard, and, so far as we know, it was kept up to the month of October of 1941. We were engaged in endeavoring to see that the Lati and Condor stocks were exhausted, and we were likewise engaged in putting together the materials for a substitute internal air line which could be supplied to the Brazilian Government, and a substitute airline which could take the place of Lati, which was Brazil's only line of communication to the outside world.

On October 17, 1941, Mr. Michler, of the Standard Oil Co., came in to see us and we had a conference. He said that the Brazilian subsidiary of Standard Oil was under a contract to deliver a large amount of aviation gas and perhaps some oil to Condor. Of course, such a delivery would make the supply equally available to Lati. He said that if they refused to make that delivery this would breach the contract which the Brazilian subsidiary had with these people, and that Condor might thereupon sue them and get large damages against them in Brazil.

He said that they had called for deliveries under that contract, and he wanted to know whether the Department of State would guarantee them against any losses if they declined to fill that contract. We pointed out that neither we, nor, so far as we knew, any other agency of the United States Government, had the power to guarantee against losses or to indemnify them. In fact, we were requisitioning right here in the United States and had not undertaken to pay damages under those circumstances. We said that we hoped they would not make that delivery, and that if they were attacked for breach of contract we—the Department of State—would give them full diplomatic support by any means in our power; in other words, we would endeavor to defend an American company or a subsidiary of an American company which had carried out the policy of the United States Government.

On the 21st we received virtually the reply to that attitude—

The CHAIRMAN (interposing). That was the 21st of October?

Mr. BERLE. The 21st of October 1941. Mr. Palmer, an attorney for the Standard Oil Co. of New Jersey, and another representative came into the office and we had another conference. He said that he had examined the problem of getting indemnification against losses and had discovered that he couldn't get any. He said that he had taken this up with the board of directors and had asked for a statement of policy.

Mr. FULTON. That is the board of directors of the Standard Oil of New Jersey?

Mr. BERLE. Of the Standard Oil of New Jersey. He said that the board of directors had advised him to notify the Department that under these circumstances, it could not agree to the Department's request to breach its contract with Condor. I got a little irritated and I said that this was a waste of time and that the Department would have to take steps open to it to prevent compliance by Standard of New Jersey and its affiliates with this contract with Condor, and he left.

Senator BURTON. Before you leave that, does that mean that at that time Standard Oil took the position that they could make any contract they wanted as a private company against the vital interests of the United States, and then stick to it, because to break the contract they had made would cost them money?

Mr. BERLE. The position they took was that they were going to keep any contracts they had made, irrespective of the interests of the United States. I don't recall that the problem came up of their making new contracts. I am not aware of the date on which they made this contract which they spoke of. The Department's policy was that we were not going to have any deliveries, contract or no contract, if we could find any way to stop them.

Senator BURTON. They were placing a preexisting private contract above the interests of the United States?

Mr. BERLE. Yes.

Senator MEAD. By action of the board of directors?

Mr. BERLE. We were so informed. In fairness to the Standard Oil Co.—because I think it is easy to be unfair in these matters—I should like to say that there was a distinct possibility that the Condor interests might have sued them, and it is conceivable that all the diplomatic assistance we might give them might not have been able to prevent them from suffering from it. And I suppose it is also possible that their position in Brazil commercially might have suffered from that. I think it is only fair to note on the record, that there were risks.

From our point of view, the national interest overrode anybody's commercial position, or for that matter, anybody's financial interest, although as you realize, we were not then at war.

Senator BURTON. Mr. Berle, isn't it true there is that risk inherent in doing business that is international in nature, and that, therefore, the proper practice is for an American company to consult with the State Department before it makes a contract?

Mr. BERLE. Under these circumstances, yes. As I say, I am not informed of the date of this contract, but in normal times, plainly every American company will not consult with the State Department in respect to the contracts it makes. When, however, the interests are as obviously adverse as they had been getting to be here for some considerable period of time, such consultation, of course, would be desirable.

Senator BURTON. And there clearly was none in this case?

Mr. BERLE. No; we knew nothing about the Condor contract except as they told us it existed. In fact, I know very little about it now. As I say, we were not interested in the contract position; we were interested in spot delivery.

Senator MEAD. Standard not only had the support of the State Department but it had the example of 89 percent of the American firms that had already cooperated with the Department in this particular matter.

Mr. BERLE. Yes. I feel bound to say, in justice to American business, that when Mr. Wayne Taylor and Mr. Nelson Rockefeller and I initiated the campaign to eliminate Nazi agents of American firms, at a time when there was no legal control and no possibility of getting any, on a voluntary basis, frequently involving the breach of contracts and very substantial expense, 89 percent of the firms and corporations involved, once the situation was explained to them, agreed at once and endeavored to take measures to clean up the situation as rapidly as they could. There again the problem of substitute services sometimes came in, as for instance where an agent would be the only supplier of a commodity on which the community depended and you had to cobble up a substitute arrangement. But we have in the main, with a few exceptions, had first-rate cooperation.

Senator BURTON. As I understand it, if a company acquired property in another nation and a war or hostile relations arise between his nation and the other nation, he takes the consequences. Is there any difference between that and acquiring a contract right? Isn't that

an inherent danger in any contract that is made with a firm of another country?

Mr. BERLE. I think that is an inherent danger in the situation. Of course, the Standard Oil of Brazil is, under the law of Brazil, a Brazilian entity and subject to Brazilian law only, and the only hold you have is that difficult legal conception of "control," so that what we were really asking was the Standard Oil of New Jersey, in New York, in the American national interest, to request its Brazilian subsidiary to do something which, according to their statement, might be contrary to Brazilian civil law of contracts.

Senator BURTON. I thought that the law-enforcement officers and the courts of this country were always ready to look through the corporate fiction to the substance when the occasion demanded.

Mr. BERLE. Senator, as a professor of law I have spent many years of my life endeavoring to work out a legal situation in which they can look through the corporate fiction, as you accurately suggest.

Mr. FULTON. What steps did the State Department take when they were faced with this attitude of Standard?

Mr. BERLE. We left the narrative on the evening of October 21, 1941. On the morning of October 22, 1941, I initiated steps to have the Standard Oil Co. of Brazil—that is to say, the Brazilian subsidiary—placed on the black list, the list of proclaimed nationals, which, of course, by that time had become a part of our legal machinery. This was a piece of legal machinery which had come into force, I believe, in July of 1941, and which now gave us something to work with which we had not had in the earlier days.

Mr. FULTON. That would be a list of proclaimed Nazi sympathizers, or what?

Mr. BERLE. Specifically, that is a list of persons with whom it is illegal to trade.

The CHAIRMAN. And by placing the Standard Oil of Brazil on the blacklist it would have been impossible for the Standard Oil of New Jersey to trade with them.

Mr. BERLE. It would have been impossible for the Standard Oil of New Jersey to sell even to its own subsidiary under that basis. Whether, in order to make that effective, you would have had to blacklist other companies as well, I don't undertake to say, because, as will be seen in a moment, the question became academic.

Mr. FULTON. Were you prepared to go further and to blacklist whatever other companies, including Standard Oil of New Jersey, would be necessary?

Mr. BERLE. We were prepared to go as far as necessary to cover this situation. We followed right through. My memorandum at the close said this:

Since it is a major objective of the United States Government to bring about the elimination of Condor—

which likewise included supplies for L. A. T. I.—

it is recommended that the committee give immediate consideration to placing the Standard Oil Co. of Brazil on the proclaimed list of certain blocked nationals. Action is being taken to prevent the granting of licenses for exports from the United States to the Standard Oil Co. of Brazil, but since the principal supplies of the Standard Oil Co. of Brazil originate outside United States territory, it is necessary to implement a degree of control achieved through export licensing by the inclusion of Standard Oil of Brazil on the proclaimed list.

News of this traveled very fast, and on October 23, 1941, Mr. Palmer, the Standard Oil Co. attorney, who had been present at the earlier conference, telephoned one of our men to say that he had been in consultation with Mr. Farish and that Mr. Farish had authorized him, Palmer, to inform the State Department that the Standard Oil Co. would cooperate with the Department in every respect and wholeheartedly, and he requested that we consider his previous statement as withdrawn, and he asked that the message be conveyed to me without delay.

From that time on, so far as I am aware, there was no departure from the arrangement by which deliveries, if any, should be controlled by the American Embassy.

To conclude the story, I ought to say that on the 1st of December 1941 the stocks of both L. A. T. I. and Condor were down to almost a minimal point, though we thought that L. A. T. I. probably had some concealed stocks that we might not have known about scattered around in various unseen places. Immediately after Pearl Harbor Condor shut down, having no more gas and no ability to get any, and the Brazilian Government promptly grounded L. A. T. I. The United States Government promptly put into effect the arrangements which it had already worked out for substitute services, and the two lines became and were, therefore, discontinued, except that Condor, which has now been taken over by the Brazilian Government, may be resuscitated as a Brazilian company in the near future.

I think that is the story, gentlemen.

The CHAIRMAN. Senator Mead, do you have a question?

Senator MEAD. I just wanted to bring out the fact that Standard, after repeated efforts to supply Condor through its subsidiary, finally yielded only when the blacklist was applied with all its force on Standard's subsidiary, and that brought the letter from the president of Standard Oil which contains the sentiments conveyed to this committee by Standard's witnesses who appeared here in the past. It is unfortunate that they did not conform. It is regrettable that the Department had to use so much force to bring about that cooperation.

Mr. BERLE. Again I would like to say something in the interest of fairness. I am not aware of any particular attempts subsequent to the agreement of April 1941 to make covert deliveries to Lati or Condor. We knew of none. The first breach in the breastworks appeared in this contract business of October 17, to which you refer. I am not clear whether the Standard really wanted to comply with the contract or whether they wanted to be in a situation in which such compulsion was exercised on them that they would say to Condor, "We didn't breach this contract. The United States Government made us." I gathered that they wished to be in the position of not breaking the contract themselves, but of being forced to break it by the United States. I should like to state that because it may have some bearing.

Not infrequently companies who are asked to conform to the national policy want to be in the position of saying, "This isn't our desire, but it is the desire of the Government, and we can't help ourselves."

The CHAIRMAN. Did any Standard official ask you to bring that situation about for them?



Mr. BERLE. We had discussed that with Mr. Palmer in the conference of October 17. He said, "You are asking us to break a contract—we, the Standard Oil Co.—and we think that you ought to take the responsibility in the matter."

I said, "We would be very glad to take the responsibility in the matter. If you wish it distinctly understood through our embassy or otherwise and all Brazilian sources that you don't make this delivery because the United States Government says you mustn't, well, we are quite prepared to make that entirely plain."

Mr. FULTON. Did Mr. Palmer tell you the Standard proposed to make the delivery?

Mr. BERLE. Well, I don't recall the exact language. I can only give you the memorandum as I have it. He said that he was directed by his board of directors to notify the Department that the company would not, therefore, agree to the Department's request to breach its contract with Condor.

Mr. FULTON. There was no reference to any further statement that that was subject to the formal action by the Department? He didn't say, "Unless the Department asks us not to"?

Mr. BERLE. No. He said unless the Department is prepared to indemnify them against losses.

Mr. FULTON. There is no reference in there to any request on their part to have you take action?

Mr. BERLE. No; that is true.

The CHAIRMAN. Any further questions, Senators?

Senator BURTON. Just this, Mr. Berle. Is there a legal theory back of all that negotiation that if Lati or Condor assert a legal claim against S. O., and S. O. then sets up as its defensive this action on our part? Is it their expectation that we will protect them and obtain an indemnity from the German Government or something of that sort? Is it a financial protection they are seeking?

Mr. BERLE. They were talking about financial protection. Of course, we have no such theory. As a matter of law, if a claim were asserted against Standard in the United States and they had declined to go forward with their contract because of the rule of American law, I suppose they have the defense of illegality. In Brazil, conceivably they might have had the defense of what is called force majeure, that is, that a foreign prince or State—in this case, the United States—made it impossible for them to go forward. Whether that would be a good defense in Brazil or not I don't know. I am not a good enough Brazilian lawyer to tell.

Senator BURTON. We are not seeking in this committee to make anybody a goat or to place blame for the sake of placing blame. We are seeking guidance for the future, and we are seeking facts. Out of this does there grow any recommendation as to the future procedure or future power that might well be vested in representatives of the Government to meet this kind of situation?

Mr. BERLE. I would want to give that suggestion some consideration, Senator, because it is easy to give out snap ideas and later you find they are only half an idea, and that isn't so good. Of course, by the time we actually got to grips with this, as you see, there was a pretty fair kit of legal powers, but that kit of legal powers in the Government didn't come into existence until, if I recall correctly, late July of 1941.

As you see, after we had that kit, we could meet a situation without difficulty. Prior to that time we could make only voluntary agreements with the corporations and hope that we got cooperation, as, indeed, we rather thought we were getting up to this last incident.

I think that at some time the committee ought to give consideration to some legal method by which foreign subsidiaries of American companies are nevertheless required to abide by the rules and policy decisions of the United States Government; in other words, that in some appropriate fashion the control of the United States be extended not merely to the parent corporation domiciled here, but also to the foreign corporation elsewhere. To some extent we are already beginning to get that control through the operation of the proclaimed list and other devices with which you are familiar. That is a technical subject which requires some study, and perhaps you will forgive me if I don't try to produce a solution out of my hat. I would want to "stew" over the problem.

Senator BURTON. I quite agree with you that there is no purpose in a snap judgment on any question of that kind. I just want to ask one more question. Again emphasizing our desire to obtain facts, and only facts, you heard the sweeping and, to me, extraordinary, testimony of Mr. LaVarre that the Standard Oil Co. had not cooperated over a substantial period of time in Latin America with the Department of Commerce or the Department of State or the United States Government in general. Have you any comment to make on that before we leave it?

Mr. BERLE. Before I answer in a blanket statement about a large corporation with many angles to it, I would want to go over the whole record. In my own slight experience, we have had varying degrees. In some cases we have had a good deal of cooperation. In other cases they have considered that they had their own policy and that outside the United States they could pursue it as they chose. Those, in my experience, have been more in matters of commercial policy and policies with relation to concessions, and such like, than otherwise. I couldn't enter a blanket indictment against the Standard Oil Co. on the facts that I have. I do know of instances where they have been a good deal of a headache.

Senator BURTON. I just wanted to get a comment to enlighten us on the blanket statement we had in the record, and then I want to ask you, since Pearl Harbor, has there been any question of lack of cooperation on the part of Standard Oil?

Mr. BERLE. So far as I am aware, in matters relating to the war; no. There have been differences of opinion in other matters, as, for instance, the degree to which you should push a disputed concession in a Latin-American country to the point of dispute, and things of that kind.

Senator BURTON. I assume from your answer that there has been no disposition to hamper the United States—

Mr. BERLE. In its war effort?

Senator BURTON. Yes.

Mr. BERLE. I personally have come across none. I couldn't undertake to make any blanket statement like that because you would have to go to the people who do work in economic warfare and who would therefore have a closer knowledge of the whole situation than I. I happen not to have had any contact with the cooperation by Stand-

ard in the war effort in questions of enemy trade and things of that kind, because it doesn't come in my jurisdiction. I, therefore, couldn't give a blanket bill of health or make a blanket indictment, either, and I guess perhaps I had best refer you in that regard to the people who have had close and active cooperation with it.

Senator BURTON. Thank you.

The CHAIRMAN. Any other questions?

Senator MEAD. This is not directly associated with the problem before the committee, but I would like to know if Nelson Rockefeller, who has been doing a fine job, had anything to do with this problem.

Mr. BERLE. So far as I am aware, he had nothing to do with it at all. My observation is that Mr. Rockefeller, as soon as he came here, completely dissociated himself from his family interests, if any, in this business. All of us feel perfectly free to go to him for help in a case like this, because we know that he would lend a hand through his personal connections. I have no reason to suppose that he entered this situation in any way.

Senator MEAD. In defense of his position, isn't it true that he aided in developing the blacklist and probably was one of the originators of the idea?

Mr. BERLE. He is responsible for it. The story of the origination of the blacklist was that Nelson Rockefeller, who had been studying the situation, came over to my office and said that they had made certain studies, that he thought they had accumulated all the information that was of any use, and couldn't we do something about it. I thoroughly agreed with him, and we thereupon enlisted the cooperation of the Department of Commerce, Mr. Jesse Jones, and Mr. Wayne Taylor. Thereafter we started in on what was at first an informal list of Nazi sympathizers, who were agents of American companies, and gradually built up from that. That is the way it began.

The CHAIRMAN. There is another question I would like to ask either you or Mr. LaVarre. Did the Sterling Products join that 89 percent that cooperated 100 percent with you on this deal?

Mr. BERLE. I don't happen to recall.

The CHAIRMAN. Do you know, Mr. LaVarre?

Mr. LAVARRE. They were with Standard Oil.

The CHAIRMAN. They were with Standard Oil. They were with the 11 percent.

Mr. LAVARRE. Yes; and still are.

Mr. BERLE. I ought to say that I didn't follow the detail of it. What we did was to confide the actual handling of the list to the Department of Commerce and to Mr. Rockefeller's office, and the actual detail of the names, and so forth, thereupon passed into their more competent hands.

Mr. LAVARRE. More competent?

Mr. BERLE. I think so.

The CHAIRMAN. If there are no questions, that is all. Thank you very much, Mr. Berle.

I want to call Mr. Foley. Mr. Foley has to catch a train and get out of town. We will proceed with him. If there are any other questions for Mr. LaVarre, they may be asked when Mr. Foley has concluded.

Mr. Foley, you will be sworn, please. Do you solemnly swear to tell the truth, the whole truth, and nothing but the truth in the testimony you are about to give before this committee, so help you God?

Mr. FOLEY. I do.

**TESTIMONY OF EDWARD H. FOLEY, JR., GENERAL COUNSEL,  
TREASURY DEPARTMENT, WASHINGTON, D. C.**

The CHAIRMAN. Will you take your seat, Mr. Foley, and give your name and connection for the record?

Mr. FOLEY. Edward H. Foley, Jr., General Counsel, Treasury Department.

**PROPOSED SALE BY STANDARD OIL OF ITS HUNGARIAN PROPERTIES TO I. G.  
FARBEN**

The CHAIRMAN. It was testified here by the Standard Oil Co. of New Jersey, by one of their officials, that the Treasury Department interposed objections to the sale of the Standard Oil interests in Hungary when that proposition was put up to them by I. G. Farben. I understand that you have some information on that subject which we would like to have in this record.

Mr. FOLEY. We appreciate the opportunity, Mr. Chairman, to appear before this committee and give our side of this situation.

When Mr. Farish appeared before the committee, he did make a statement in connection with the proposed sale by Standard Oil Co. of its Hungarian oil properties to I. G. Farbenindustrie, of Germany, for \$24,000,000, that the Standard Oil Co. lost the sale and the Government lost \$24,000,000 in gold.<sup>1</sup>

The acting chairman of the committee, Senator Mead, said that if it was an unwise decision, he was sure that the Treasury Department had a side of the controversy and that he would like to have that presented to the committee. With your approval, Mr. Chairman, I would like to make a statement directed to Mr. Farish's remarks in connection with this transaction.

The CHAIRMAN. Proceed.

Mr. FOLEY. In July 1941, the Standard Oil Co. filed an application with the Treasury Department for a license, under the freezing control order, to sell its Hungarian subsidiary to I. G. Farben. The application stated that the consideration for the sale was the payment by I. G. Farben to Standard Oil of:

(1) \$5,500,000 in Swedish, Swiss, and Latin-American currencies.  
(2) \$13,500,000 in gold to be delivered in Lisbon, Portugal. This gold was later to be brought to the United States and sold to the Treasury.

(3) A promissory note of the I. G. Farben for \$5,000,000 to be paid 3 months after the end of the war. This note was secured by the American assets of I. G. Farben which were already blocked and under this Government's control.

The Interdepartmental Committee on Foreign Funds Control, which consisted of the Assistant Secretary of State, Dean G. Acheson,

<sup>1</sup> See supra, p. 4372, et seq, see also p. 4343.

Assistant Attorney General, Francis M. Shea, and the General Counsel of the Treasury, Edward H. Foley, Jr., carefully studied this application and consulted with their respective departments. The three departments agreed that in view of all the facts and circumstances, the approval of the application would not be in accordance with the policy of this Government in administering the freezing control order. The application was, accordingly, denied.

Upon inquiring if the Foreign Funds Control Committee would deny such application even though the total purchase price of \$24,000,000 was paid in gold at Lisbon, the Standard Oil Co. was advised that such an application would also be denied.

An approval of this transaction would have permitted the Standard Oil Co. to have been preferred by Germany over other American owners of capital investments in Germany and the occupied countries. The proposed transaction may have been even more generous than a mere preference. Mr. Farish in his testimony indicated that "\$24,000,000 represented a good bit more than the cost of the properties" to the Standard Oil Co. and that the Standard Oil Co. was "getting something for nothing."

Germany wanted to purchase the Standard Oil properties in Hungary as a part of its program to acquire through so-called "legal" methods complete economic domination and control over Europe. For this Government to have approved the proposed sale of Standard's Hungarian oil properties to Germany would not merely have facilitated Germany's program of economic domination of Europe, but would have been tantamount to an approval of Germany's economic new order in Europe.

It is a fundamental policy of our freezing control program to prevent Germany from acquiring the assets of overrun countries or from being able to make use of any such assets that it may have looted. To have permitted Germany to use \$24,000,000 of looted gold or other foreign exchange assets to pay for the oil property in Hungary would have been a direct contradiction of the purpose of our freezing control. It would have exposed us to the charge of being willing to accept the spoils of looting to help preferred American companies. Mr. Farish admitted in his testimony that his company had no way of knowing where and from whom Germany acquired the gold that was being offered in payment.

This country had much more to gain, in terms of retaining the confidence and good will of overrun European peoples and subjugated governments, by maintaining the high moral principle of preventing Germany from acquiring or making use of looted assets than this country lost in not permitting the Standard Oil Co. to sell its Hungarian properties for funds looted by Germany.

An approval of the transaction which contemplated shipment of gold from Lisbon to the United States would have involved us in a breach of the British blockade of Europe which was being maintained to weaken Germany's economic and military position.

The application of the Standard Oil Co. to sell its European properties was comparable to a number of other applications to sell American-owned properties in Europe, which applications were denied by Foreign Funds Control in accordance with the policy of the Interdepartmental Committee.

A comprehensive statement of the governmental policy with respect to the various applications for the sale of American-owned property in Germany and Italy and countries occupied by them was prepared by the Interdepartmental Committee on Foreign Funds Control in September 1941. A copy of this memorandum was furnished to the Vice President as Chairman of the Economic Defense Board in September 1941, in response to a request from him.

I desire to read to this committee the memorandum of September 15, 1941 [reading Exhibit No. 485]:

STATEMENT OF POLICY WITH RESPECT TO THE SALE OF AMERICAN-OWNED PROPERTY IN GERMANY, ITALY, OR COUNTRIES OCCUPIED BY THEM

1. For the guidance of Foreign Funds Control, the State, Treasury, and Justice Departments have approved the principle that American-owned property in Germany or German-controlled countries should not be sold for payment out of accounts blocked in the United States belonging to nationals of Germany or the occupied countries. This principle was adopted for several reasons.

It was felt that such sales would result in the disposal of blocked assets in favor of particular investors or creditors in the United States, who would thus enjoy a preferred status with respect to such blocked assets to the detriment of other claimants. The policy of first come, first served, with respect to the disposition of such assets, would not be desirable; but this is not a true first-come, first-served situation. Due to its rigid control over the owners of the blocked assets the German Government would be effectively dictating which interests in the United States should be paid in full and which interests should receive partial payment or no payment at all.

With respect to the use of blocked assets of occupied countries in these transactions, there is always the possibility of duress, with the result that the blocked assets which Foreign Funds Control seeks to protect would be used to facilitate German acquisition—

Senator MEAD (interposing). Mr. Foley, if I may interrupt there, it is necessary for me to go over to the Senate and be there at 12 o'clock, and I shall return immediately after that. I want to say to you that I appreciate your taking cognizance of what transpired when I was the acting chairman of the committee and when this subject matter came up, and I am deeply grateful to you for the thought, the attention, you gave the subject and for your coming here to be with us this morning.

Mr. FOLEY. Thank you, Senator.

Senator MEAD. I shall return as quickly as possible.

The CHAIRMAN. Thank you, Senator.

Mr. FOLEY [resuming reading Exhibit No. 485]:

of ownership of European industries or properties under a cloak of legality. It was felt also that even in cases in which the initiative appeared to come from groups in occupied countries who were apparently acting in their own interests and free from duress, the proposed transactions might nevertheless be on behalf of German interests and inimical to the interests of the United States.

Usually the physical evidences of title are located in this country and the proposed transaction contemplates the removal of these physical evidences to some other country where they will no longer be readily amenable to our control.

2. When the parties interested in purchasing American holdings in Germany and the occupied countries became aware that foreign funds control would not permit such purchases out of blocked accounts in the United States, they turned to the use of gold or other assets looted from occupied countries and held physically outside of the United States. Illustrative of this development was a proposal that German interests purchase American properties in Europe for gold which was to be delivered in Lisbon. It seemed clear that this proposal represented an attempt by the Germans to use assets for which, under existing conditions, they had little other use, to acquire "clean" title to American-owned property in Germany and the occupied countries. This proposal also involved an attempt to obtain American support for a breach of the British blockade,

through the transportation of the gold to this country. It would, moreover, have involved the purchase by the United States Government of gold the title to which was not "clean." Even though the gold offered in any particular transaction may have been acquired in normal commercial channels, it must always be borne in mind that transactions involving such gold are inextricably intertwined with transactions involving other assets acquired by conquest or duress.

3. More recently proposals to acquire American-owned properties in Germany or occupied countries have turned from the use of gold to the use of the currencies or foreign exchange of neutral countries, both European and South American. As in the case of gold, the Germans have been attempting to use looted assets which otherwise have little present value to them. The probable origin of these assets is indicated by the fact that it was in the late summer and early autumn of 1940 that the Germans suddenly initiated large scale purchases of American holdings. In one instance American sellers of properties in Germany have indicated that their proposals were suggested to the Germans prior to the fall of France and were rejected by the Germans at that time—presumably because of the German shortage of foreign exchange—whereas the Germans on their own initiative recently reopened negotiations on these transactions.

4. Most recently—after it had been indicated that Foreign Funds Control would reject the use of blocked dollar assets, gold, or foreign exchange held openly in German names for the purchase of American-owned property in Germany and the occupied countries—the Germans have apparently begun to use as go-betweens the financial institutions of neutral countries, allegedly acting on their own behalf. In one transaction for which approval was recently denied, certain interests in a neutral country would have acquired majority ownership of important industrial properties in German-occupied territory. In spite of the fact, confirmed by the applicants themselves, that the German Government was in complete control of the properties, these interests were willing to make loans and purchase securities to an amount which seemed out of all proportion to past earnings and probable economic gains from mere ownership of the property in question. The suspicion was, therefore, deemed to be well founded that the interests which put forward the proposal, either on their own initiative or in collusion with German interests, contemplated the subsequent disposal of the assets to German interests. It was thought unwise that Foreign Funds Control should permit actions through a neutral cloak which would not be permitted if they were undertaken openly on German account.

5. The same principles which apply to Germany and German-occupied countries should, of course, be applied to Italy and Italian-occupied countries. The application of these principles to other Axis countries will depend on the extent to which these countries follow the German and Italian models in economic affairs.

(The memorandum referred to was marked "Exhibit No. 485" and appears in full in the text on pp. 4518-4519.)

Mr. FOLEY. It is believed that the principles set forth in this memorandum represent a logical interpretation of the provisions of Executive Order No. 8389, as amended. Any other interpretation would result in a discrimination between American owners of assets under Axis control, the delegation to the Axis Government of the power to make discriminatory concessions to favored American interests, and the use of American commercial channels in disposing of looted property.

The CHAIRMAN. Thank you, Mr. Foley.

Are there any questions?

Mr. FULTON. No. I think that covers it.

The CHAIRMAN. Thank you very much, Mr. Foley.

Mr. FOLEY. Thank you, Mr. Chairman, for giving us an opportunity for clearing the record up.

The CHAIRMAN. That is a very good statement, I think, and can be used as the basis for future transactions.

Mr. FOLEY. Thank you, sir.

The CHAIRMAN. Do you have any questions to ask, Mr. LaVarre? Do you have something you want to add?

Mr. LAVARRE. Yes; on the date, to show you how long the Lati air line lasted. The last cable we received, saying that it was going to close down because they had no gasoline, was dated December 17, 1941.

The CHAIRMAN. That was the date that we asked for a moment ago.

Mr. LAVARRE. I would like to make two statements, if I may. First I would like to contribute something that might help the committee.

The CHAIRMAN. Proceed.

Mr. LAVARRE. You asked Mr. Berle a question which he felt he shouldn't or couldn't answer at that time. I would like to say that I think that if the committee would look beyond the horizons of the country, you would find that these facts which you are putting together now make a pattern, that is, a pattern of international trusts and cartels, and therefore you have to have a law to control the international industries.

The second thing is that I have worked for 3 years tracing down the so-called Standard Oil contract. Mr. Berle stated that they had informed the State Department that they had a contract with Condor and therefore they lost money and would be sued if they broke it.

The CHAIRMAN. Did they have such a contract?

Mr. LAVARRE. No, sir; there is no contract. It was a subterfuge, and I would like to ask the committee to ask them to produce it.

The CHAIRMAN. We shall do that, most certainly.

Mr. LAVARRE. That is all.

The CHAIRMAN. Are there any other questions?

Senator BURTON. No.

The CHAIRMAN. Thank you very much, Mr. LaVarre.

The committee will recess until Tuesday at 10:30, when Mr. Jesse Jones will be the witness.

(Whereupon, at 12 noon, the committee adjourned until 10:30 a. m., Tuesday, April 7, 1942.)



# INVESTIGATION OF NATIONAL DEFENSE PROGRAM

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TUESDAY, APRIL 7, 1942

UNITED STATES SENATE,  
SPECIAL COMMITTEE TO INVESTIGATE  
THE NATIONAL DEFENSE PROGRAM,  
*Washington, D. C.*

The committee met at 10:38 a. m., pursuant to adjournment on Friday, April 3, 1942, in Room 318, Senate Office Building, Senator Harry S. Truman presiding.

Present: Senators Harry S. Truman (chairman), Tom Connally, James M. Mead, Mon C. Wallgren, Joseph H. Ball, Ralph O. Brewster, Clyde L. Herring, Harold H. Burton.

Present also: Mr. Hugh A. Fulton, chief counsel; Mr. Charles P. Clark, associate chief counsel.

The CHAIRMAN. The committee will come to order.

Mr. Jones, I believe you have a statement which you want to make to this committee, and you had also forwarded to the committee a set of questions and answers which the committee had asked you, and I am going to make those questions and answers a part of the record at this point before you start with your statement.

## STATEMENT OF JESSE H. JONES, SECRETARY OF COMMERCE

Mr. JONES. Have the members of the committee seen those questions and answers?

The CHAIRMAN. Some of them have.

Mr. JONES. I brought some of them here.

The CHAIRMAN. All of the members of the subcommittee and the chairman have seen the questions and the answers, but some of the members of the committee who were out of town have not as yet had an opportunity to read them.

Mr. JONES. We have copies of all of them and for the fourth estate.

The CHAIRMAN. Have all the members of the committee copies of the questions and answers?

Mr. FULTON. No; they haven't.

(The document referred to was marked "Exhibit No. 486" and is included in the appendix on p. 4786.)

## STEPS TAKEN BY R. F. C. FOR PRODUCTION OF SYNTHETIC RUBBER

Mr. JONES. Supplementing my reply to the first question about synthetic rubber, in those formal questions which you submitted to us some days ago, I would like to state that until I read Mr. Batt's testimony before your committee, I thought we were following his and Mr.

Stettinius' recommendations in the experimental synthetic rubber program. As stated in my answers to the formal questions which your committee propounded to me, the procedure adopted meets the recommendations in principle and substantially in manufacturing capacity.

Not only did the R. F. C. undertake to provide experimental manufacturing facilities recommended by Mr. Stettinius, but we have a much better stock pile of natural rubber on hand than it was contemplated we would have when Mr. Stettinius wrote the President on September 12, 1940.<sup>1</sup>

As to synthetic rubber, there were plenty of unsettled questions delivered to us by Mr. Batt. The members of the National Defense Council were, themselves, not in agreement on what to do or how to do it in producing synthetic rubber. So it was necessary for us to learn how to do what we had to do while we were doing it—the several industries that had to take part in developing the program as well as those of us in Government.

I think I can make this clear by quoting from Mr. Stettinius' memorandum to me of October 21, 1940. In that memorandum Mr. Stettinius made certain recommendations, but he also made it clear that there were many unknown factors which would have to be considered and resolved, and for which the National Defense Council had not found the answer.

The CHAIRMAN. Mr. Jones, has this committee a copy of that memorandum of Mr. Stettinius, of October 21, 1940? Will you furnish one?

Mr. JONES. I will furnish one.

The CHAIRMAN. You furnish the full text.

(The memorandum referred to was marked "Exhibit No. 487" and is included in the appendix on p. 4791.)

Senator BREWSTER. I would like to have it now. Have you a copy there?

Mr. JONES. I will quote from it. I present some pertinent parts of Mr. Stettinius' memorandum [reading from Exhibit No. 486]:

1. That all necessary steps be taken to insure that facilities, of a reasonable capacity, for the production of synthetic rubber be established in this country.

2. That a capacity of 100,000 tons a year is a reasonable goal.

3. That engineering plans for large-scale commercial units designed to provide this total capacity be developed as rapidly as possible.

4. That fabricators of rubber products make every effort to develop their knowledge of the use of synthetic rubber and the techniques of application.

These conclusions were approved in principle by representatives of industry at a meeting called by the committee on August 7, 1940. On the understanding that efforts would be made to develop the necessary plans for plant financing or for assuring a market for the product, five companies agreed to draw up, at their own expense, preliminary engineering plans for commercial units. The total annual capacity for which such plans were to be developed amounted to 108,800 tons. A few days thereafter, a sixth company expressed its intention of developing similar plans. It was agreed that these preliminary plans would be submitted to the committee not later than October 7, 1940.

Following the meeting of August 7, representatives of the committee discussed with officers of the Reconstruction Finance Corporation possible plans of financing. Meetings were arranged between these officers and representatives of the interested companies. It was not apparent to the committee that marked progress was being made as a result of these conferences. It was evident that

<sup>1</sup> See Exhibit No. 354, appendix, p. 4556.

some confusion existed, particularly for the industrial concerns, because of the fact that two governmental agencies were involved.

Early in October the committee agreed to accede to the suggestion of the Reconstruction Finance Corporation that the latter organization assume full responsibility for all future steps, and accordingly turned over those engineering plans which had already been received.

I should like to put in there, for myself, that I do not remember that we suggested the matter be turned over to us, but maybe we did.

Senator BREWSTER. Who is the authority for this statement in your statement?

Mr. JONES. For what statement? I am reading now from Mr. Stettinius' report. I am still reading his report.

Senator BREWSTER. You mean that is a summary of what Mr. Stettinius said in this report?

Mr. JONES. This is not a summary; this is a definite quotation from his statement.

Senator CONNALLY. The quote starts on page 2, does it not, at the top of page 2, and doesn't end until page 5?<sup>1</sup>

Mr. JONES. Yes.

While the Reconstruction Finance Corporation now has full responsibility, possibilities of nongovernmental solutions must have adequate consideration, with the Reconstruction Finance Corporation properly informed in order that any conflict may be avoided.

Mr. Stettinius is still talking [reading further from Exhibit No. 486]:

The committee made this decision even though it was fully aware that a number of important questions, upon which it had been working, remained unresolved. Many of these problems are not of a financial nature; others are only in part financial. The committee wishes to call attention to some of these problems, and to record its opinion that they should be given the most careful consideration by persons competent to deal with the various aspects involved.

1. There is not one process for producing synthetic rubber, but rather many processes. Similarly, there is not one type of synthetic rubber, but rather a number of types, which differ substantially in their properties and applications. The various processes are not settled, but are in a stage of rapid development. These considerations, combined with the fact that large-scale commercial units have not been operated in this country, give rise to a number of questions upon which the opinion of qualified experts is invaluable, if not imperative. For example:

(a) Which type or types of synthetic rubber would be most satisfactory for meeting emergency needs, particularly for tires? Which give most promise for future developments along these lines?

(b) In view of the fact that large-scale plants have not hitherto been engineered, which of the engineering plans are most likely to form the basis for satisfactory performance? Which of these will be the least expensive? Are the various units, for which plans have been submitted, of the appropriate size?

(c) Which of the plans can be most quickly implemented in order to cope with the potential emergency?

(d) Are there uncertainties in the patent situation which would present difficulties in the way of a smooth-working program?

(e) To what extent are technical developments in the industry likely to render obsolete any plants which may be erected now? To what extent, and in what ways, may the emergency program affect these developments, taking into account the present status of the different processes?

(f) What will be the effects of an emergency program upon existing and potential private efforts?

2. In view of the present uneconomic nature of synthetic rubber production in this country, what methods of financing or marketing are best suited to promoting the desired program? More specifically:

<sup>1</sup> Referring to Mr. Jones' prepared statement.

(a) Should all of the risk be borne by the Government, or should industry be required to bear a part of the risk?

(b) Should the plan contemplate merely the erection of stand-by plants, or should actual production of large or small tonnages be envisaged?

(c) Should the approach be one of direct financing, in whole or in part, by the Government, or should some method be set up for assuring a market—by subsidy, import license, tax rebate, etc.?

On most of these questions, the committee is not yet in full agreement.

I am speaking now of the Stettinius committee.

It should be noted, however, that a large majority favor the establishment of an advisory committee of impartial and competent technical experts to assist in the determination of problems. In any event, the committee feels that a reasoned decision on these and similar questions is a necessary prerequisite to any successful program.

That, as I stated, has all been from Mr. Stettinius' report to me on October 21, 1940. So, beyond question, the whole process was in a state of flux. Any responsible Government department undertaking the building of synthetic rubber plants without first making a careful investigation of all these questions raised by Mr. Stettinius and his committee, would have been subject to very great criticism, and it should have been criticized.

In my view, the logical way to proceed was to call upon the people whose business it is to make tires and who had done some experimental work in synthetic rubber.

Following the receipt of the Stettinius report, numerous conferences were held with members of industry and experts of the Chemical Division of the National Advisory Council. As a result of these conferences, proposals were sent out December 5, 1940, to some of the rubber companies, asking for definite propositions or suggestions for the construction of synthetic rubber plants. The time limit fixed for answers was January 15, but some of the proposals did not reach us until the latter part of January.

The proposals were discussed and considered in detail with people who had submitted them, and with the experts of the Chemical Division of the National Defense Counsel.

While they laid the baby in our lap, as it were, we continued to use their experts and their facilities, such as they had, in our consultations in order to reach our determination, and that was all willingly given. There was no controversy between the two agencies. Everybody was working to the same end of trying to get the answer.

One of the most important problems to be determined was the use of synthetic rubber in the manufacture of tires. Only one company had made tires from synthetic rubber in any quantity. Arrangements were made to have the Army test synthetic tires. I think I have testified heretofore that I had some of these tires tested by the Bureau of Standards of the Department of Commerce.

It was decided March 25, 1941, after many discussions with various members of the industry, to arrange for the building of four plants, one by each of the large tire companies, with the buildings laid out for a capacity of not less than 10,000 tons each, but with initial equipment for only 2,500 tons each.

I might say there, in addition to my prepared statement, that the rubber companies felt that they could test synthetic rubber and make tires as well with 2,500 tons as they could with 10,000 tons, because it was still experimental.

Senator WALLGREN. Was that March 25 of this year?

Mr. JONES. Of 1941.

On March 28 the rubber companies were asked to submit proposals in accordance with this agreement. It is our understanding that the industry proceeded immediately with the perfection of plans. There has been no delay; on the contrary, the program has been pushed as much as we know how to push it.

On May 9, Mr. R. R. Deupree, who is president of Procter & Gamble Co., Cincinnati, who had been appointed by the National Defense Council to make a report on synthetic rubber, presented to me a letter from O. P. M., signed by Mr. Knudsen, with a report from Mr. Deupree to Mr. S. R. Fuller, chief of the Materials Branch of O. P. M., and a memorandum from Mr. Fuller to Mr. Knudsen. This report recommended the immediate erection of plants capable of producing 40,000 tons of synthetic rubber annually.

On May 10 we advised Mr. Knudsen that we were proceeding with the program. That was the next step.

It was therefore possible by May 19 to enter into contracts for the construction of plants. Immediately thereafter the decision was reached to go ahead with the expansion to 10,000 tons each, which had been contemplated when these contracts were made. As arrangements for additional supplies of raw materials were made with the oil companies, improvements were developed which increased the capacity of these plants to 15,000 tons or more, instead of 10,000 tons each.

In addition to the four plants which we are assured will have a capacity of more than 60,000 tons, du Pont is just completing a neoprene plant at Louisville, with a capacity of 10,000 tons, which it built upon our agreement to buy the plant if the synthetic program was enlarged. We are now buying that plant. Du Pont has another plant at Deepwater, N. J., with a capacity of approximately 10,000 tons, and Goodrich has a plant at Akron with a capacity of approximately 10,000 tons. Some of the other companies are making small amounts, so that the recommendation of Messrs. Batt and Stettinius was met.

We have persistently worked at the problem of acquiring and producing rubber, and now have engagements for manufacturing facilities sufficient to produce in the United States more than 700,000 tons of synthetic rubber annually, and can readily increase this if necessary. People in the industry assure us there are ample raw materials to go just as far as we want to go in the quantity and amounts of synthetic rubber that it may be necessary for us to manufacture. But I should like to add, even with this large capacity for manufacturing synthetic rubber, civilians must conserve tires and rubber in order to meet our military requirements.

That, Mr. Chairman, is supplementing, as I stated, my answer to your formal questions on synthetic rubber.

The CHAIRMAN. Mr. Jones, in this synthetic rubber set-up, did you have some difficulty with patents, and things of that sort?

Mr. JONES. We had every imaginable difficulty. We had difficulty about patents. That was finally resolved only very recently. In the beginning, I think, two of the rubber companies were to use the Standard of New Jersey patents and pay a royalty, if I remember cor-

rectly, of 7 percent on the amount of rubber manufactured and sold; maybe on the entire amount, I am not certain about that. That was later reduced to 5 percent on the first 100,000 and then 4 and then 3 for the great bulk. There was a conflict between the tire companies. There was litigation between the Goodrich people and the Standard people on patents.

Answering your question, I can say we did have considerable difficulty and it involved considerable delay.

The CHAIRMAN. Standard was suing Goodrich for infringement, was it not?

Mr. JONES. I think so, yes; so that there was trouble, all of which took time.

The CHAIRMAN. When was that patent situation finally resolved so that you could go ahead?

Mr. JONES. I believe it was after Pearl Harbor. Negotiations were in process, but the conclusion was reached after Pearl Harbor.

The CHAIRMAN. Did that cover everything?

Mr. JONES. I think it covered everything, and it is my understanding that every manufacturer can use all the patents by paying the Jersey company 1-percent royalty for the use of the patents.

The CHAIRMAN. Would that include the du Pont patents, too?

Mr. JONES. I don't think so.

The CHAIRMAN. It didn't include the du Pont patents?

Mr. JONES. It didn't include the neoprene patents.

The CHAIRMAN. They didn't come in at all?

Mr. JONES. No.

The CHAIRMAN. Are they now in the program?

Mr. JONES. It is not my understanding that they are.

The CHAIRMAN. When did the Standard Oil Co. turn over the butyl patents? Did they turn them over on December 19?

Mr. JONES. I am advised that the butyl patents were not included in that over-all use of patents reached late in December, 1941.

Senator MEAD. Have they been turned over as yet for pooling purposes?

Mr. JONES. They are available under the consent decree, I suppose, but they have not been included in the pool where everybody can use everybody else's patents.

Senator MEAD. So that they are really not available to everybody.

Mr. JONES. They are under the consent decree with the Department of Justice. By the way, that consent decree removes the 1-percent royalty that the companies were all to pay the Standard Co.

The CHAIRMAN. They will pay no royalty now for the duration of the war, is that true?

Mr. JONES. No royalty, as I understand it, according to the consent decree.

Senator HERRING. Mr. Jones, did you consider the use of butyl patents as valuable in the synthetic program?

Mr. JONES. Well, we had never believed, from the information received—and you must bear in mind that we didn't know anything about making synthetic rubber and we have to rely on the people in the business—that the butyl patents or the butyl method was sufficiently perfected to justify the investment of large amounts of money in plants which might not work.

Senator HERRING. That was my understanding.

The CHAIRMAN. The other day, when the Standard Oil Co. was before this committee, they showed us two brands of butyl rubber, one that would apparently stand the heat treatment and the other one that wouldn't. Do you know if any tires for experimental purposes have been made out of the new butyl rubber that the Standard displayed to us the other day?

Mr. JONES. I have no information on the subject.

The CHAIRMAN. Do any of your people know anything about it?

Mr. JONES. No.

#### RUBBER STOCK PILE

The CHAIRMAN. There is another thing I am very much interested in, Mr. Jones, and that is the natural rubber stock pile. I wish you would tell us something about our stock pile and its accumulation, and particularly the problems you had to overcome in that.

Mr. JONES. I should probably start at the beginning, if I am to tell the story as accurately as I can remember it.

The CHAIRMAN. That is what I would like you to do.

Mr. JONES. As I recall, along about the 1st of June or late in May 1940, the President asked me to arrange for the accumulation of a stock pile of rubber. That required legislation, so we asked Congress for authority to buy and accumulate stock piles of critical and strategic materials, and that authority was granted, and the enactment signed the 25th of June, 1940.

In the meantime, I had invited, through the State Department, the International Rubber Regulation Committee to send a representative to this country. Sir John Hay came, and we were negotiating with him while the bill was being considered by Congress. We had almost reached an agreement with him when the bill was signed; and 3 or 4 days later we executed a contract with the International Rubber Regulation Committee whereby we agreed to be a ready purchaser of rubber at a price between 18 and 20 cents a pound delivered c. i. f. New York; and, incidentally, that was less than the then going market price of rubber.

The CHAIRMAN. This International Rubber Regulation Committee controlled absolutely the production of the British and the Dutch rubber output, did they not?

Mr. JONES. That committee controls, I am advised, 97 percent of all natural rubber produced in the world.

The CHAIRMAN. Who composed that committee?

Mr. JONES. The British and the Dutch, and I don't know who else. The British and the Dutch controlled nearly all of the countries that produced rubber; that is, the Far East and Ceylon. There is, of course, a little rubber produced in Africa also.

The CHAIRMAN. Was that a Government agency or was it a voluntary organization of the rubber people themselves?

Mr. JONES. That is a private agency that operates with the approval, I think, of Government. It has some governmental status, or at least governmental approval, so that in all of our contacts we confer through the State Department.

The CHAIRMAN. Was this accumulated stock pile of yours arranged for at the suggestion of the Army and the Navy?

Mr. JONES. It was arranged for at the suggestion of the President. The CHAIRMAN. Did the British accumulate a stock pile of their own?

Mr. JONES. Well, I am advised that at the fall of Singapore they had probably 100,000 tons or less; not more.

The CHAIRMAN. They are now, to some extent, dependent upon our stock pile, are they not, for natural rubber?

Mr. JONES. Yes. Instead of being an importer of rubber we have become an exporter of rubber, because we have a lot of kinfolks now who must have some rubber, among other things we give them.

The CHAIRMAN. Why was this rubber shipped to New York instead of San Francisco?

Mr. JONES. We had no control over where it was shipped or would land. We offered to take rubber and encouraged taking rubber on the Pacific coast in order to enable the ship to turn around and go back the other way, and perhaps make three trips instead of two; but most of the ships were carrying other things than rubber.

The CHAIRMAN. In other words, they were not loaded to capacity with rubber? They had other freight aboard as well as rubber?

Mr. JONES. And in many cases they would have to come on east.

We did take a good deal of rubber on the Pacific coast. We were willing to take it and anxious to take it any place we could get it, and the quickest place for the boat.

Senator CONNALLY. Mr. Jones, in this memorandum, or report, that Mr. Stettinius made to you, from which you quoted, I notice that he raised there a number of questions that were then unsettled, upon whose decision the final result would depend; is that true?

Mr. JONES. Yes, sir

Senator CONNALLY. For instance:<sup>1</sup>

(a) Should all of the risk be borne by the Government, or should industry be required to bear a part of the risk?

That was a factor that was not then decided, and was an element in the decision which, of course, you probably didn't care to undertake at the moment.

(b) Should the plan contemplate merely the erection of stand-by plants, or should actual production of large or small tonnages be envisaged?

I am asking these questions merely to develop the fact that it wasn't simply a question of your going ahead and getting the rubber under any and all circumstances.

Mr. JONES. I may say that a great many of those questions are not yet resolved, and will not be. This industry will develop only through practice and experience, and the plants that we are building may not provide the most perfect method; but, according to the experts, the way the plants are being planned and designed, they won't all be losses. If improvements are made, they may be in the second or third or fourth or fifth treatment of the raw material that starts through the plant. If only you could see one of the blueprints of a synthetic-rubber plant, it would take that entire wall there to show you where the raw material starts and where it comes out. If you want evidence of the unending problems involved, go look at one of them.

<sup>1</sup> Exhibit No. 487, supra, p. 4791, at p. 4793.



Senator CONNALLY. For instance, also, subparagraph (c):<sup>1</sup>

Should the approach be one of direct financing, in whole or in part, by the Government, or should some method be set up for assuring a market (by subsidy, import license, tax rebate, and so forth)?

Those were all problems over which you had no jurisdiction at all.

Mr. JONES. They were all problems that had to be resolved.

Senator CONNALLY. But you would have had to come to Congress for authority, for instance, about subsidy and the import license and tax rebate. What I am trying to develop is that along with the baby, they left all these other side issues and problems to be determined which they weren't prepared at the moment to themselves; is that right?

Mr. JONES. Yes. I might say that the baby that was left on our doorstep had not been cleaned or washed, if you know what I mean.

Senator CONNALLY. I have had some experience in that line.

Then, may I ask one other question, and then I am through. The concluding portion of the Stettinius report that you read was:<sup>2</sup>

In any event, the committee feels that a reasoned decision on these and similar questions is a necessary prerequisite to any successful program.

Naturally, you were confronted with all these things before you could make a reasonable decision as to what to do.

Mr. JONES. We don't know whether we have the right answer now, but we do believe that the procedure we have adopted will give us rubber that can be used, and successfully used, in large quantities.

I would like to restate that I don't think there has been any difference between the opinion of the people at O. P. M. and ourselves. We undertook to do in principle and in effect the thing that they recommended. We weren't shooting at the exact number of dollars. We were shooting at results, and I hope we have arrived at them. Certainly, we are going all the way insofar as the authority we have, and the know-how we have.

I might also mention on synthetic rubber that when we were given authority to buy critical and strategic materials, no specific reference was made to rubber—that is, synthetic rubber—and I never felt sure that we had the definite authority to spend hundreds of millions of dollars in building up a new industry, and for that reason I talked to the Banking and Currency Committee of the Senate, which passes on all of our legislation, the 8th of May 1941, I submitted the matter to the committee, and they thought we ought to proceed in a modest way, in the way that we were proceeding.

Now, of course, after Pearl Harbor, there wasn't any question about what we ought to do, and we have gone all the way.

You asked me about the crude rubber, the accumulation of the stock pile. We have on hand, including a little bit yet afloat, and that which the rubber companies have, about 700,000 tons of raw crude rubber, which is a very large stock pile of rubber; and, of course, we are told that there are enormous quantities of rubber that can be reclaimed. So much as to the amount. I don't think I answered your question on the difficulty of getting it. Our first agreement with the

<sup>1</sup> Exhibit No. 487, *supra*, p. 4791, at p. 4793.

<sup>2</sup> *Ibid.*

rubber committee was to buy 150,000 tons, which we expected to get in the year 1940, and a large part of which we did not get. We got only about 40,000 tons. We were continually after the Committee to increase the production.

It has been my understanding that the easy or natural production of raw rubber in the world is about 50 percent more than we normally use in a good year like, we will say, 1940—I mean the entire world. So they only turn the spigot open so far in order to keep the price at a profitable level. We were getting rubber mighty fast the latter part of '41. As a matter of fact, we have received some two hundred fifty or sixty thousand tons of rubber since Pearl Harbor, and you would be interested to know that our Government stock pile of rubber has increased a little over 100,000 tons since Pearl Harbor; that is, since we started conserving it, since the various restrictions were laid down, so that our stock pile of rubber now is more than 100,000 tons over what it was at the time of Pearl Harbor.

The CHAIRMAN. Were any substantial amounts of crude rubber left behind in Malaya and the Dutch East Indies?

Mr. JONES. I doubt if there was any to speak of. We think we got it all. We got it in a very big hurry when there was danger, and we were getting it out at the rate of more than 100,000 tons a month. We would have had a substantially larger amount of rubber in our stock pile if they had produced it back in the latter part of 1940 and the first part of 1941.

The CHAIRMAN. You mean if this Rubber Committee had permitted it to be produced, you would have been able to get it out?

Mr. JONES. That is right, if we could have gotten the ships; and I think we could have made such arrangements.

Senator HERRING. Mr. Jones, some of these kinfolks you have to look after now are responsible for your not having anything to look after them with.

Mr. JONES. Yes; but I take it they didn't expect that the rubber would be cut off. We have got to supply, of course, the British and the Russians, and many other countries with rubber.

The CHAIRMAN. They were also somewhat uneasy that there might be a surplus of rubber after the end of the war; wasn't that true, too?

Mr. JONES. Yes; that is the purpose, of course, of that cartel; that is the purpose of the control, and they did not want an unusually large stock pile that might suppress and destroy the market. Our contracts provided that, except in the case of an emergency, we would release only so many tons of this rubber a year; that is in limited quantities. I think that same kind of provision was included in the barter rubber we got for the cotton.

#### STEPS TAKEN BY R. F. C. FOR PRODUCTION OF SYNTHETIC RUBBER

The CHAIRMAN. And they advised very strongly against experiments with synthetic rubber, did they not—this same rubber committee?

Mr. JONES. I wouldn't say that they did.

The CHAIRMAN. Mr. Howard, of the Standard Oil Co., testified that they did, before this committee.

Mr. JONES. I doubt if he knew what he was talking about, because in all of my discussions with Sir John Hay, I didn't hesitate to remind him that, of course, we could manufacture synthetic rubber

but I don't think he made many replies. As a matter of encouraging him to get it out as fast as possible, I did a number of times remind him of that possibility, in as diplomatic a way as I know how.

Senator MEAD. Mr. Jones, I was going to ask you about the restrictions by the du Pont Co. on the use of neoprene. You told us a moment ago that that wasn't in the pool, that the du Pont Co. restricted the use of it to their own corporation. Would that aid the situation any if it was put in the pool, if other companies were allowed to use it?

Mr. JONES. I don't think it would, because none of the other people know how to make it. That is a much more expensive rubber; it probably costs three times as much. It is a specialty rubber, and in our over-all provision of 700,000 tons, we are increasing neoprene to a total, including what they now have, of 50,000 tons a year, which is ample for neoprene, and there are no royalties or patent charges assessed by du Pont during the emergency. They give it patent-free, and it would be a mistake to ask anyone else to undertake to manufacture neoprene, in our judgment, because du Pont knows how. They have been dealing with it a good long time and are very capable people.

Senator MEAD. Of course, they could permit the use of their patents and the know-how so that ultimately other firms could work with it, if it was beneficial to the total output.

Mr. JONES. They could, but I don't think it would be a feasible or practical thing, Senator. They are specialists in their lines and they are capable, indeed, and the synthetic rubber problem is certainly an unfinished and undeveloped one. I don't think anybody would want to tackle it. It wouldn't be a good time now, because it would mean the waste of additional materials, building materials, steel, and things that are imperatively needed for other purposes.

Senator MEAD. Mr. Jones, a moment ago you mentioned the figure 700,000 tons, and I noticed in your statement you didn't give the time when that production would be a reality.

Mr. JONES. I will try to give you that.

Senator MEAD. I was wondering about that.

Mr. JONES. I will try to give you that. Of these plants now under construction, the new neoprene plant at Louisville is about completed. I think two of the others will be completed in July or August, maybe another in September. Another is dragging and that will come in about the first of the year. That should bring the total annual production capacity up to approximately 100,000 tons, we will say, by the first of the year.

In these new plants, a substantial amount should be in production by July or August, a very substantial amount, and unless there are unexpected delays in securing needed materials, the entire program should be completed in 1943, so that if we can just be a little bit careful from now until the end of 1943 I think we will have a substantial amount of rubber. If, however, the war continues and we have to keep giving rubber to other people, other countries, and use it ourselves in our own war effort, we won't have a great deal for private use, and that is the reason we are continuing in the R. F. C. to explore where we can get another 100,000 tons, another 50,000 tons, or another 200,000 tons. And we know where we can get it. We know

the people who can make it, who have the material, the location; so if the W. P. B. should determine that we should jump the program up another 100,000 tons we can do it in 3 days' time; that is, we can let the contracts to the people who can produce it.

Senator MEAD. So that sometime in 1943 this maximum productivity will come in?

Mr. JONES. I should say it would be the end of '43 before the maximum comes in. That contemplates pretty good luck. We had half a dozen of these fellows in yesterday and I talked to them. I said, "Why can't you build these plants in 12 months instead of 15?" They said, "Maybe we can and maybe we can't, but our plan is to keep the heat on as continuously as we can to get the plants built."

Senator MEAD. In the meantime, are we adding any to our crude rubber stock pile from the very limited areas that are left in the producing field?

Mr. JONES. Yes, we are still buying a little rubber. We are getting a little from Ceylon—of course, that is endangered now—we are getting a little rubber from Africa; and we are making an extraordinary effort to get natural rubber in Central and South America. There appear to be 8 or 10 countries that produce a little rubber, but the quantities are so small that they cannot produce it in competition with the Far East, so we are paying a very much higher price; and we are offering to pay a higher price. In Brazil, we agreed to advance \$5,000,000, at least, to go out in the jungles and try to develop and bring it out, but it is a very big problem. It won't work fast. Those people are not in as big a hurry as we are, naturally; and you have to find people who can live in those jungles, and there are none too many of them there. I am advised by the rubber people, people who operate down there, that a great deal of labor will have to be imported into Brazil and the Amazon Valley from other countries in order to increase that production very much.

Last year, it is my information, Central and South America imported more rubber than they exported. We are, though, making some trades and doing what we can. We are not allowing any stone to remain unturned that we think we can find some rubber under. But even when rubber was \$2 a pound—and that was a long time ago, before the Far Eastern development, the maximum amount of rubber that was produced in Latin America—Central and South America—was something like 42,000 tons a year.

Senator WALLGREN. Mr. Jones, how much rubber are we exporting to our kinfolk that you mentioned?

Mr. JONES. I don't know. I am not in possession of that information.

Senator WALLGREN. Do you know whether or not England or Russia are making any efforts to produce synthetic rubber?

Mr. JONES. I am sure England is not because they have no material from which to produce it. They don't produce any oil.

Senator WALLGREN. Is it going to be up to us to furnish rubber to them?

Mr. JONES. It would be. We would have to ship them the raw material from which to make it, and it would be cheaper and quicker and require less shipping space to ship them the finished product.

Senator WALLGREN. Under the present program will any synthetic rubber be made this year in this country?

Mr. JONES. Yes.

Senator WALLGREN. Approximately how much?

Mr. JONES. I should say anywhere from twenty-five to forty thousand tons.

Senator WALLGREN. And you will reach full capacity of 700,000 tons sometime in 1943?

Mr. JONES. The latter part, the end of the year. We will be pretty lucky if we get it all in that time, but we ought to get a substantial amount of it, Senator, from about July on.

Senator WALLGREN. Can the general public expect any relief soon from this program as far as tires are concerned?

Mr. JONES. Senator, that will depend entirely on the amount that we use and the war program and the amount that we ship abroad.

Senator WALLGREN. That is all I have.

Mr. JONES. Russia is producing, we are told, some rubber, some synthetic rubber; and also they grow a weed over there that is supposed to produce rubber. We don't know how much.

The CHAIRMAN. Senator Brewster?

Senator BREWSTER. What did you find, Mr. Jones, was the cost of producing crude rubber?

Mr. JONES. Producing? You mean in the Far East?

Senator BREWSTER. Yes.

Mr. JONES. We are informed by the rubber people that the cost is from 12 to 14 cents for producing it on the plantation.

Senator BREWSTER. What is the lowest price at which it has been sold?

Mr. JONES. I don't know. As I stated a while ago, we were buying from 18 to 20 cents, which we thought was a fair price. That was something under the market, because the market had begun to get a little nervous at the time. That was something under the market—18 to 20 cents. I think I have heard hearsay gossip or information that rubber can be produced at very much smaller cost than I have indicated. That might be an individual plantation; but the rubber people, who are interested in this and who have all of the information available to them from the records of the producers, tell me that it averages from 12 to 14 cents.

Senator BREWSTER. Well, it isn't gossip, is it, that it has sold as low as 3 cents?

Mr. JONES. You mean that rubber was sold?

Senator BREWSTER. Yes.

Mr. JONES. That is not gossip, no; but I wasn't talking about that.

Senator BREWSTER. I asked you about how low it had sold.

Mr. JONES. And I didn't know how low it had sold.

Senator BREWSTER. I think your evidence was that it had gone as low as that.

Mr. JONES. The record here before me says 3.4.

Senator BREWSTER. Yes. And the negotiations which you had in 1940 regarding purchase were with Sir John Hay?

Mr. JONES. Yes, sir.

Senator BREWSTER. What is his precise position, his official job?

Mr. JONES. He is a member of the International Rubber Regulation Committee. He represents them in some official capacity. He came with authority to negotiate.

Senator BREWSTER. Was he a governmental representative, or just of this private committee?

Mr. JONES. I understand that it is a private operation with Government approval.

Senator BREWSTER. Do you know how many members there were on that committee?

Mr. JONES. I do not.

Senator BREWSTER. Did you ever see any other representatives?

Mr. JONES. No other.

Senator BREWSTER. He was the only one?

Mr. JONES. He was the only man we ever saw.

Senator BREWSTER. Through this period of 1940 his policy in his discussions with you was to maintain the price of rubber, was it not?

Mr. JONES. Well, we agreed to buy at a range between 18 and 20 cents.

Senator BREWSTER. Yes; which gave them a profit of around 4 cents to 6 cents?

Mr. JONES. I should say it gave them a very substantial profit.

Senator BREWSTER. In other words, through that period of crisis they were carrying on business as usual.

Mr. JONES. I should say yes.

Senator BREWSTER. And you made as strong representations as you could on behalf of our Government and our people as to the desirability of their cooperating with your program to build up our crude rubber stocks?

Mr. JONES. We were continually after them. We did not complain about the price because it appeared to us that if we were going to get the rubber we had better give them a price that would stimulate them and encourage them to get it out, because they were not governmental—they were private people, and they are no different from people in this country. They all want to make a profit.

Senator BREWSTER. You have stated that your dealings were through the State Department.

Mr. JONES. Our engagements were made with the State Department—our engagements, but not the business end of it. We did the trading.

Senator BREWSTER. Then were the governments of these other countries in the deal, or were they not?

Mr. JONES. What was that question?

Senator BREWSTER. Were the Governments of Britain and the Netherlands in this deal, or were they not?

Mr. JONES. Not to my knowledge.

Senator BREWSTER. Although you have said the committee had the approval of those Governments.

Mr. JONES. I say that they have some sort of approval. I don't know how much it is, and I might be wrong about that. I haven't definite information about it.

Senator BREWSTER. With the benefit of hindsight, which is always helpful, it is clear that it was a very unfortunate policy that restricted the production of crude rubber through 1939 and 1940, is it not?

Mr. JONES. Yes. We would have been very much better off if they had produced a greater quantity. We were ready buyers, agreed to

be ready buyers, and were constantly urging them to produce more rubber.

Senator BREWSTER. And you intimated occasionally that we might develop synthetic rubber?

Mr. JONES. I reminded them of that; yes.

Senator BREWSTER. Had you explored that possibility very much at that time?

Mr. JONES. We were studying it all the time. We were going through this very program all the time. I might say we were getting more confused all the time.

Senator BREWSTER. I think that is the condition of the country, Mr. Jones.

Mr. JONES. That is my opinion.

Senator BREWSTER. In the report which you received from Mr. Stettinius, which, according to the record you have submitted here was not a report to you, but was transmitted to you as a copy of his report of October 21 to the Defense Commission—that is correct, isn't it? That is the way your letter of transmittal shows it.

Mr. JONES. Whatever it is. The facts speak for themselves.

Senator BREWSTER. Yes.

Mr. JONES. I think he was trying to give us the benefit of their experience and studies.

Senator BREWSTER. Yes.

Mr. JONES. They probably gave us a good deal more material than this.

Senator BREWSTER. Yes; I think they testified that they turned over to you all of their records and researches.

Mr. JONES. Yes.

Senator BREWSTER. But in that report, on the first page, they state under item 7, that "The production of synthetic rubber is now out of the experimental stage and on a commercial basis on a very small scale."<sup>1</sup> That is cited by them as a finding of fact as a result of their studies up to that time. Did that accord with your conclusions?

Mr. JONES. I don't think it accords with their own conclusions, if you will read all those questions. I think there is a contradiction.

Senator BREWSTER. It states in the part which you read, Mr. Jones, "It was agreed that these preliminary plans would be submitted to the committee not later than October 7, 1940, from the companies." As I understand, that was not done.

Mr. JONES. Was or was not?

Senator BREWSTER. Was not done. Is that right, or was it done?

Mr. JONES. I don't know.

Senator BREWSTER. Would you say that it was fair, Mr. Jones, that there is somewhat more of a suggestion of urgency in Mr. Stettinius' report than there was in subsequent conduct of the procedure when it came fully under your jurisdiction?

Mr. JONES. I don't think so. We were constantly devoting a great deal of time to getting this thing started.

Senator BREWSTER. And the year which subsequently elapsed before any large-scale production was commenced you feel was a reasonable time for you to determine detailed plans?

<sup>1</sup> See Exhibit No. 487, appendix, p. 4791, at p. 4792.

Mr. JONES. I wouldn't say it was satisfactory to us by a jugful. We were trying, working constantly at the job to get it done.

Senator BREWSTER. Of course, the picture up to the present time has been, Mr. Jones, that they recommended 100,000 tons at this time, and I think in statements of your own you have indicated that you determined on a 40,000-ton program. Wasn't that the statement you made regarding the situation?

Mr. JONES. You mean in this meeting?

Senator BREWSTER. No. I mean in a public statement, that you had reduced the recommendation of Mr. Stettinius' report to a \$25,000,000 program, comprising approximately 40,000 tons.

Mr. JONES. Well, I have never stated that we reduced his report.

Senator BREWSTER. You never have?

Mr. JONES. No; not to my knowledge. We adopted it in principle and started to work. I have gone through this whole matter here very clearly and specifically as to the plans that finally came out with a capacity of some 70,000 tons, including one of 10,000 tons built by du Pont which we agreed to buy if we went into a synthetic program in a big way—and we are now buying it. That is just the same as if we had built it at the time.

Senator BREWSTER. The report recommended the creation of a committee of experts to pass on these technical questions. Did you create such a committee?

Mr. JONES. Well, I don't know what you call experts.

Senator BREWSTER. I don't think that is susceptible of definition. I think either you know it or you don't. It is obvious that you consulted with what you called experts.

Mr. JONES. We consulted freely with the experts of the National Defense Council. We consulted with people in industry—the oil and the rubber industries. The only way that I know to get anything done is to get somebody to do it who knows how to do it, and not the fellow that you want to do it. I wouldn't want to tell the rubber companies how to make a rubber tire, because I wouldn't know how, but it is their business to know how. So we were leaning upon the industry, the people who were going to do the work.

Senator BREWSTER. Now, did you have a committee of technical experts or did you not?

Mr. JONES. I don't know whether we had a committee of technical experts or not.

Senator BREWSTER. Mr. Jones, that is a very amazing statement.

Mr. JONES. I don't think it is amazing at all.

Senator BREWSTER. You don't know whether you had a committee of technical experts or not?

Mr. JONES. I don't know what an expert is.

Senator BREWSTER. Well, you know what a committee is, don't you?

Mr. JONES. Yes. We had a committee.

Senator BREWSTER. You had a committee. And how was that composed? What was it composed of?

Mr. JONES. I say we had a committee. We had a great many people working on it.

Senator BREWSTER. I am seeking to find out whether or not you undertook to constitute any kind of committee to advise you on this program.



Mr. JONES. We got all the advice we could get from every source.

Senator BREWSTER. Well, I think, then, we will conclude that you did not constitute a committee. Is that a correct conclusion?

Mr. JONES. That is your answer. It isn't mine.

Senator CONNALLY. Mr. Jones, you said you had the Chemical Division of the National Defense Council.

Mr. JONES. I suppose they were experts.

Senator BREWSTER. In connection with your final action, Mr. Jones, the development of your program, did you make the statement that in June 1943 you would have 400,000 tons?

Mr. JONES. I think not. I don't remember having made any such statement.

Senator BREWSTER. Do you recall a statement which you made, following reports that we might have a rubber shortage, of a very reassuring character in January of this year that we would be all right by June 1943?

Mr. JONES. I don't remember the statement, but if you will bring it to my attention, I will answer it. I don't remember it.

Senator BREWSTER. You don't remember any public statements you have made regarding the rubber shortage within the past 2 months?

Mr. JONES. I have testified before half a dozen committees. I probably said the summer of 1943.

Senator BREWSTER. Yes.

Mr. JONES. Not June. We call summer August or September. June is the spring of the year.

Senator BREWSTER. I thought you came from Texas, not from Maine, Mr. Jones. [Laughter.]

Mr. JONES. Our summer is October.

Senator BREWSTER. What is the present status of your contracts with these companies? Are they matters of letters of intent or are they matters of actual signed contracts?

Mr. JONES. Both.

Senator BREWSTER. And what is the distribution of them, approximately?

Mr. JONES. You mean the distribution of the quantities to the different companies?

Senator BREWSTER. Yes. How much has Standard Oil of New Jersey, for instance?

Mr. JONES. Standard Oil has a very small amount, I think.

Senator HERRING. Standard Oil doesn't make any rubber, does it?

Mr. JONES. They make the raw materials.

Senator HERRING. Yes.

Mr. JONES. The Jersey company has contracts for 53,000 tons of butadiene, which will produce about 60,000 tons of rubber.

Senator BREWSTER. And that is all that they have?

Mr. JONES. That is all. They have 60,000 tons of butyl rubber.

Senator BREWSTER. In addition?

Mr. JONES. In addition. That is about 120,000.

Senator BREWSTER. One hundred twenty thousand tons, then?

Mr. JONES. Including the butyl.

Senator BREWSTER. Mr. Farish's evidence before us was that they had contracts for 200,000 tons. Did that refer to the raw materials or to rubber?

Mr. JONES. I don't think his figures were right. The three Jersey companies—the Standard of New Jersey, the Humble Oil, and the Standard of Louisiana—combined have a total of 120,000.

Senator BREWSTER. Those are under one control, are they?

Mr. JONES. I don't know whether they are under one control. I think Standard of New Jersey dominates.

Senator BREWSTER. And in connection with the construction of these facilities, do they have option for their acquisition afterward—after the war?

Mr. JONES. No.

Senator BREWSTER. Do they have any preferred status in their acquisition?

Mr. JONES. No. The plants are owned by the Government and will be operated—all of these plants are owned by the Defense Plant Corporation and will be operated for the account of the Rubber Reserve Company on a fee basis.

Senator BREWSTER. And these various operating companies have no preferred position as to the acquisition of these physical facilities after the war?

Mr. JONES. According to my understanding, they have not.

Senator BREWSTER. Their testimony to us has been different; that is, they have testified to us that they had a 6-month preferred status.

Mr. JONES. I think with a good many people who are building plants, not just rubber, we agree that if the Government determines to sell the plant, it will negotiate with the builder and operator of the plant, for a period of maybe 6 months. That doesn't mean that he has an option. It doesn't mean that he has to refuse it at somebody else's price, but that we will honestly undertake, assuming that we are still here, to work out a sale with that fellow, if he is interested in it. So if we, the Government, should determine, we will say, after the emergency, that we are going to sell X plant, we would notify the man who had built it and operated it, and say, "We want to sell. Do you want to buy?" He would have a period then of up to 6 months, maybe, to determine whether he wanted to buy it or what he would offer.

Senator BREWSTER. And if the Government had determined upon a price, he would have the first opportunity to acquire at that price.

Mr. JONES. I suppose he would, if we set an upset price, but we probably wouldn't do that.

Senator BREWSTER. You would probably determine on a policy, assuming you were conducting the matter?

Mr. JONES. Yes.

Senator BREWSTER. And what your policy would be.

Mr. JONES. And we would want to get the best price we could.

Senator BREWSTER. But at some stage of the negotiations, presumably, as a good trader, you would indicate your price, would you not?

Mr. JONES. Of course, I would; yes.

Senator BREWSTER. And you consider that that is not a preferred status?

Mr. JONES. It may be a preferred status.

Senator BREWSTER. I think it is very clear that it is. The same thing came up in connection—

Mr. JONES (interposing). But it is not a status that hurts the Government.

Senator BREWSTER. That is a matter of opinion.

Mr. JONES. Yes. We in the R. F. C., when we ask people to help do things to win the war, try to be fair to them as well as to be fair to the Government. We do insist on the trades being as fair to the Government as possible, but we also expect to be fair to the man who is serving the Government. We think it is perfectly fair to give him a period in which to negotiate.

Senator BREWSTER. Both Mr. Davis, of the Aluminum Co., and Mr. Farish, of the Standard Oil, have testified that that option of acquisition was not a thing to which they attached great importance.

Mr. JONES. Yes.

Senator BREWSTER. In that circumstance do you still think it is wise for the Government to insert this clause when the companies themselves apparently are not insisting upon it?

Mr. JONES. Well, I don't think that Mr. Davis or Mr. Farish can speak for industry. They speak for two companies.

Senator BREWSTER. I am speaking of the Aluminum Co. of America and the Standard Oil Co. of New Jersey as specific instances with whom you are dealing, and representing the rights acquired by their own companies and the obligations assumed.

Mr. JONES. They have never told me anything of that nature or anything that could be so construed, so there must be some misunderstanding somewhere.

Senator BREWSTER. Have they been insistent to you that this clause should be included?

Mr. JONES. I don't think I have ever discussed it with Mr. Farish at all. I did discuss it with Mr. Davis, and we reached an agreement to that effect.

Senator BREWSTER. Are you familiar with his testimony before our committee at about that same time that he didn't attach particular importance to that clause?

Mr. JONES. No. I will be glad to eliminate it if he wants to eliminate it.

Senator BREWSTER. I think that should be seriously considered.

Mr. JONES. I think you will find that he doesn't want to eliminate it, though.

Senator BREWSTER. Well, you will agree now that these companies which are rendering this service to the Government do get a very substantial consideration in this option of possible acquisition, do you not, Mr. Jones?

Mr. JONES. I think it is valuable to them.

Senator BREWSTER. Yes; that it might be of very great significance in the economic situation that would exist after the war.

Mr. JONES. I don't see how it could affect the Government adversely at all, not the slightest.

Senator BREWSTER. Even though a few companies might monopolize all the physical facilities for producing synthetic rubber or aluminum?

Mr. JONES. We don't have to determine to sell at all.

Senator BREWSTER. No; but if you do sell it, you have to sell it to the people who may dominate the industry. Isn't that true?

Mr. JONES. We don't have to sell it to that fellow.

Senator BREWSTER. But you can't sell it to anyone else.

Mr. JONES. Oh yes, we can.

Senator BREWSTER. Well, not in good faith. Isn't that true, Mr. Jones?

Mr. JONES. No.

Senator BREWSTER. Aren't you dealing in good faith?

Mr. JONES. We are, and we will negotiate with the fellow if he wants to negotiate. He may not want to.

Senator BREWSTER. Let's assume that he would. You thought that he probably would. You thought they attached importance to it.

Mr. JONES. I think they very likely would, yes.

Senator BREWSTER. So that if they did desire after this war to acquire these facilities, the Government, in good faith, could not refuse to allow them to have them, could they?

Mr. JONES. You are right, if it is in the contract.

Senator BREWSTER. Yes; that is right. That might have a very great economic and social significance, might it not?

Mr. JONES. I don't think so at all.

Senator BREWSTER. Well, that, again, is a matter of opinion.

Mr. JONES. In my opinion, they don't attach any importance to it.

The CHAIRMAN. Senator Ball?

Senator CONNALLY. Mr. Chairman, I have to go. May I ask a question right there?

The CHAIRMAN. Proceed.

Senator CONNALLY. So far as this right to negotiate with the Government is concerned, there is no compulsion on the part of the Government to sell at any figure, is there?

Mr. JONES. None.

Senator CONNALLY. And you wouldn't lose anything by negotiating with a prospective buyer who might offer you an attractive price, and if he didn't offer you an attractive price, you would tell him no. Isn't that right?

Mr. JONES. That is correct.

Senator CONNALLY. And then you could go on, if you liked, and sell it to anybody or keep it and let the Government operate it as a method of controlling the prospective trust that might be growing up in synthetic rubber. Isn't that true?

Mr. JONES. That is correct, or they can continue to operate it for the Government.

Senator CONNALLY. I say, continue to operate it ourselves and thereby hold a check on the price and on the operation of the prospective trust.

Mr. JONES. We could continue to operate it while we were negotiating.

Senator CONNALLY. That is all.

The CHAIRMAN. Senator Ball.

Senator BALL. Mr. Jones, Mr. Farish testified here that in September of 1941 the Rubber Reserve Company, or whoever was working with them on building that butadiene plant in Louisiana, at Baton Rouge, I believe, told them to stop work on it. Is that correct?

Mr. JONES. Yes. We found we could buy the raw material without building the plant, that we didn't need the plant.

Senator BALL. Raw material for how much rubber capacity?

Mr. JONES. What was needed at that time. We took their output. They were building a plant, and we agreed to take their output and some other, which was all of the raw material of that particular kind that we needed at that time, and when we started to increase, then we told them to go back to work.

Senator BALL. Well, his testimony was that they went right ahead and disregarded the stop order.

Mr. JONES. Well, he was testifying to suit his own purpose.

Senator BALL. Can you tell us what that quantity of butadiene was? How many tons?

Mr. JONES. Fifteen thousand tons.

Senator BALL. Fifteen thousand tons, which would produce slightly over 15,000 tons of rubber?

Mr. JONES. Of rubber.

The CHAIRMAN. May I ask the spectators to be as quiet as possible. It is most difficult to hear in this room. It has no acoustical powers at all, and it is very difficult for the reporter to get the exact answers of the witness when there is the slightest bit of noise. I want everybody to be as free as possible, but please bear in mind that this committee is here to hear this testimony and not to entertain the spectators.

Proceed, Senator Ball.

Senator BALL. Then it would appear that your total program for production of rubber in September of 1941 was slightly over 15,000 tons.

Senator BALL. Well, you said you had enough butadiene for 15,000 tons, to cover your production program.

Mr. JONES. Others manufactured this material. That was only Standard's quantity.

Senator BALL. My question was, what total supply of butadiene did you need to meet your rubber-production program so that you didn't have to go ahead with this new plant, and your answer was "About 15,000 tons."

Mr. JONES. I didn't understand the question if I made the wrong answer.

The CHAIRMAN. Mr. Jones, if you desire one of your attorneys to straighten the record—

Mr. JONES (interposing). I will get the information.

The CHAIRMAN. It will be perfectly all right.

Mr. JONES. There were 40,000 tons available at that time without building the Standard plant.

Senator BALL. There were 40,000 tons a year available without building additional plant, so that your program was somewhat over 40,000 tons of synthetic rubber.

Mr. JONES. At that time, but we were continually expanding it.

Senator BALL. I noticed in your answers to these questions, question six on the synthetic rubber. "When did construction actually start" on these original plants and the program for which contracts were let in the summer of 1941? "Construction was undertaken on the Goodyear plant in May." Does that mean actually breaking ground and starting the physical construction work, or engineering work?

Mr. JONES. Breaking ground.

Senator BALL. Is this 60,000 tons of butyl rubber the Standard Oil of New Jersey is to produce all the finished rubber they are producing? They are producing 53,000 tons of butadiene, which goes to other rubber plants?

Mr. JONES. That is my understanding.

Senator BALL. Are they the sole producers of butyl rubber under the program?

Mr. JONES. Yes, sir, under our contracts.

Senator BALL. I see. So that actually when they put the butyl patent into the pool, they are still going to be the sole producer?

Mr. JONES. They didn't put the butyl patents in the pool. They are only available through the consent decree.

Senator BALL. This contract on butyl, then, was entered into before that consent decree?

Mr. JONES. No, I think since. It was entered into in February, but I think we would naturally trade with the Jersey people for the butyl rubber because we think they know or should know a great deal more about how to make it than anybody else, and we don't trade with them now because we love them—we trade with those whom we think can deliver the goods.

Senator BALL. I understand your reasons, surely, but actually du Pont is going to produce all the neoprene under this program?

Mr. JONES. Yes.

Senator BALL. And Standard Oil, all the butyl?

Mr. JONES. All the butyl.

Senator BALL. And all the rest is buna-S, approximately 590,000 tons?

Mr. JONES. Is that buna-S? I don't know all the brands.

Senator BALL. Has Standard begun construction of that 60,000-ton plant, or is it more than one plant?

Mr. JONES. Three plants. They have begun construction.

Senator BALL. Were the engineering plans developed under this 40,000-ton program? Were you able to use them very much on this expanded program, or did you have to develop new plans?

Mr. JONES. Almost entirely. It is just an evolution.

Senator BALL. I see. So that with minor improvements—

Mr. JONES (interposing). It was the same people, of course. They brought in more oil people to produce the butadiene and the styrene and the various and sundry other things that they haven't got that go to make it up.

Senator BALL. How many rubber companies have contracts for this remaining 590,000 tons in the 700,000-ton program?

Mr. JONES. Four big companies have contracts for the polymerization of the rubber, and then we are saving a substantial quantity to be divided among the smaller rubber manufacturers. I may say that it takes a good deal longer to produce the raw material than it does for the polymerization feature, so that we want to allow each small rubber company that wants a part in it to have a part, and we provide him with the raw materials.

Senator BALL. By the "four big companies," you mean Goodyear, United States Rubber, Firestone, and this Hycar?

Mr. JONES. Hycar? Hycar is Goodrich.

Senator BALL. What is the fourth one, then?

Mr. JONES. Goodrich, United States, Goodyear, Firestone.

Senator BALL. I see. And they will produce about what? What are you saving? How much of this 590,000 are you saving for the smaller companies?

Mr. JONES. Fifty thousand tons.

Senator BALL. And have all those contracts with the major companies been let?

Mr. JONES. The contracts are let or they have gotten letters on which they are working.

Senator BALL. Have they begun construction? On what proportion of them?

Mr. JONES. One hundred and twenty thousand under construction.

Senator BALL. Now, on the four big—

Mr. JONES (interposing). I suppose they will expand these plants that they have already under construction now. The smaller program will be expanded. I assume that is the way they will do it.

Senator BALL. I see. Well, is that 120,000 simply an expansion of that original 40,000 program, or is that part of these new plants?

Mr. JONES. That was an expansion of the original 40,000. That is an expansion of the original contract.

Senator BALL. That is an expansion of the original 40,000. Then when do you expect them to begin construction work on the new plants?

Mr. JONES. The rubber companies?

Senator BALL. Yes.

Mr. JONES. As soon as necessary, but the rubber companies will have more time because it takes longer to build the facilities for the raw materials than it does the rubber. There is no delay on that.

Senator BALL. This will take slightly less tonnage of butadiene than of rubber, won't it?

Mr. JONES. Yes. A little more rubber comes out than styrene goes in.

Senator BALL. Have all the contracts for the raw materials—butadiene and styrene—been let?

Mr. JONES. Yes.

Senator BALL. Has construction of those plants begun?

Mr. JONES. Well, we hope so. We have let the contracts.

Senator BALL. What tonnage is under construction?

Mr. JONES. I don't suppose we would know. I don't know how much. They have to make their plans and specifications and designs, and so forth and so on, but I think they are in as big a hurry as anybody else.

Senator BALL. All of these—the styrene and the butadiene and the polymerization plants—are being built entirely by Defense Plant Corporation, will be owned by them, and will be operated on a fee—

Mr. JONES (interrupting). That is correct.

Senator BALL. — by the oil companies. How many oil companies are building these raw-material plants?

Mr. JONES. Sixteen oil companies.

Senator BALL. Sixteen. What fee are they going to receive for operating? What is the basis of the fee?

Mr. JONES. Sixty-nine hundredths of a cent a pound, graduating downward on quantity to a third of a cent a pound where Rubber Reserve furnishes the working capital and three-quarters of a cent a pound, graduating downward on quantity to thirty-five hundredths of a cent a pound where the contractor furnishes its own working capital.

Senator BALL. And what is the fee on operating the rubber plants?

Mr. JONES. One and a half cents, graduated downward to seven-tenths, depending upon volume.

Senator MEAD. Mr. Chairman, I omitted one question, and if I may ask it, I shall have completed my requests for information.

The CHAIRMAN. Proceed.

Senator MEAD. Mr. Jones, you explained to me that the international committee had exercised considerable control of the rubber situation and that they unfortunately restricted our importation of raw rubber supplies. We are asking our citizens to forego the ordinary uses for which rubber is put. Our restrictions, according to Mr. Henderson, will grow progressively more severe, and in view of the fact that we now control the situation and we are supplying, as you said, our kin-folks in the United Nations, I am wondering if they are exercising the same severe restrictions on their citizens and if that matter has been brought to our attention, if we are satisfied with the use they are putting this rubber to.

Mr. JONES. Of course, we have no way of knowing, but we do know generally that they don't use very much rubber.

Senator MEAD. Well, shouldn't we insist that it be limited to military uses, in view of the difficulties that we are encountering in preparing it and supplying it?

Mr. JONES. I think we should, and I have no doubt but that we are through the proper agency. That wouldn't be through us. That would be through the people who are dealing with the foreign countries. I assume that would be lend-lease and the War and Navy and other people who have the contacts and allocate the materials.

Senator MEAD. In view of the fact that they may, to a degree at least, hold your agency responsible in case of an acute shortage, I think you would be well within your rights in bringing that matter to the attention of these agencies that you mentioned, so that the exportation of this synthetic rubber supply would be reduced to a minimum.

Mr. JONES. I think there is no doubt that that matter is being insisted upon and taken care of by the proper authorities.

Senator MEAD. I think it would be well to insist upon it.

Senator WALLGREN. Mr. Jones, in the questionnaire submitted to you by the committee, question No. 20 reads, "What shipments were sent to Japan from 1939 on by the British and Dutch?" As I read your answer here, it appears that the British and Dutch shipped to Japan in 1940 42,300 tons of rubber, and that since that time even while Japan has been a member of the Axis Powers, the British and Dutch—that is, this monopoly—have been shipping a certain amount of rubber to Japan. Is that right?

Mr. JONES. Was that my answer?

Senator WALLGREN. That is as I understand your answer. And now we are being asked to export rubber to England and to Russia and, I presume, to the Dutch East Indies.

Mr. JONES. I guess they weren't mad enough to quit at that time.

Senator WALLGREN. That is all.

The CHAIRMAN. Senator Burton?

Senator BURTON. I will try to make this brief, but I have one or two questions.



In the estimate of the crude rubber situation as given to us by Mr. Henderson early in March, he indicated that we might expect in synthetic rubber in 1942, 25,000 tons.<sup>1</sup> I understand you are slightly raising that now. Is that right?

Mr. JONES. Well, I am willing to leave it at that.

Senator BURTON. You said a little while ago 25 up to perhaps 40 thousand tons.

Mr. JONES. Well, 25 to 40.

Senator BURTON. So that it is up, rather than down, anyway.

Mr. JONES. I hope it will be up.

Senator BURTON. Then in 1943 your estimate is that by the end of the year, we will have a 700,000-ton capacity. His estimate for the year was that we would receive 300,000 tons in 1943.<sup>2</sup> Does that still hold good?

Mr. JONES. That was actual manufactured product? Three hundred?

Senator BURTON. He called it crude rubber outlook on synthetic rubber, 300,000 tons in 1943.

Mr. JONES. I wouldn't be surprised if we get that much. Those were his figures. I didn't issue them.

Senator BURTON. But the developments since that time and your own study of it indicate it will be approximately that figure? That is not far out of line?

Mr. JONES. We ought to.

Senator BURTON. Then for 1944, under your figure of 700,000 capacity, we should have 700,000 or more in 1944. Isn't that correct?

Mr. JONES. If that is the way it works out.

Senator BURTON. And his figure was 600,000, so that in 1944 our picture improves rather than goes backward.

Now, in that connection, I want to ask this of you, as to whether or not—excuse me. Go ahead.

Mr. JONES. At the time of Mr. Henderson's testimony our maximum was fixed at 600,000, and now it is fixed at 700,000 capacity. You see, we have increased it since he testified. We have increased the maximum from 600,000 to 700,000.

Senator BURTON. And with that maximum, his estimate still contemplates, as I understand it, a reduction of about 25 percent in the demands of our military forces and our civilian uses and the rest of the non-Axis world, because his computation called for a substantial reduction of the present uses and reduced about 25 percent the rubber for the military forces and about 25 percent in our civilian uses as well. Calling your attention to this sort of situation. I would like to get your comment as to whether or not you think 700,000 tons is enough. In our defense plants, the defense workers, in order to reach those plants, have a practical problem in getting to the plants, and if they don't have tires, it creates a very difficult problem as a matter of mass transportation. For example, at the Thompson Products Co. in Cleveland, one of the largest ones there, 85 percent of its workers are dependent on private cars, and 15 percent use mass transportation lines, which are already overtaxed. In Michigan, 794 plants show 75 percent of the workers are dependent upon

<sup>1</sup> See *supra*, p. 4263.

<sup>2</sup> *Ibid* v. 4265 et seq.

their cars for transportation. The Glenn Martin plant of Baltimore employs 35,000 workers, and all but 350 of them ride in their private cars—and so on down through many places. We find many of our cities without mass transportation.

What is your opinion, under those circumstances, whether we should stop at 700,000 tons of synthetic rubber, or whether we should go beyond that in order to meet part of this 25 percent cut in the use of vehicles which is contemplated by this procedure?

Mr. JONES. Senator, if we can spare the materials from other pressing demands, such as ships, I think we should increase the manufacturing capacity of synthetic rubber above the 700,000. I realize the problems that you indicate and how serious they will be as the tires wear out and are no longer serviceable. Of course, they probably can get along with a good deal less than they are now using.

Senator BURTON. But it is essential that we find a way to get the workers to the plants in order to carry on production.

Mr. JONES. There is no doubt in the world but that that must have attention. I reiterate, if we find we can spare the material, then I would favor increasing the capacity for manufacturing synthetic rubber.

Senator BURTON. That is the point I am urging upon you as an essential consideration.

Mr. JONES. Yes, and that is under constant consideration.

Senator BURTON. Looking back over the procedure and finding the difficulty which you had in working out the program in the early stages, our testimony showed there was a letter from that committee of which Mr. Stettinius, I believe, was the chairman, of September 12, 1940, which did not at that time raise all these questions, but specifically recommended a 100,000-ton plant.<sup>1</sup> That was the recommendation then, but you felt you were unable to follow it at that time for lack of information. Was that it?

Mr. JONES. The exact recommendation was to increase the capacity in the country, which he stated in that letter was 5,000 tons a year, to 100,000 tons a year, and that is what we have been working toward and have accomplished before the big program of up to 700,000 tons was established.

Senator BURTON. You merely are pointing out that it took a long time to do it because of the difficulties in it.

Mr. JONES. That is it, exactly.

Senator BURTON. But it was at least a confirmation of the wisdom of having a committee of, let's say, experienced men make a recommendation on that problem as soon as possible, and I take it you are still using those experienced men in your procedure.

Mr. JONES. I am. As I say, we rely largely on the people who are going to make the rubber and not some fellows who are going to tell them how to do it. It is their job to find the know-how and the so-called experts.

Senator BURTON. I am interested in the over-all problem which resulted in our finding ourselves without synthetic rubber locally produced and without guayule rubber locally raised. Did you find that perhaps our international policy had overstepped itself a bit in relying too much upon outside sources of materials in this field and, therefore, had tended to support them and develop them to the

<sup>1</sup> Exhibit No. 354, appendix, p. 4556.

neglect of our own resources that might also be a part of the economic supply?

Mr. JONES. I am afraid I didn't quite get the full purport of your question.

Senator BURTON. Let me try it again. We have an international policy which attempts to make good friends of all the world.

Mr. JONES. Yes.

Senator BURTON. And therefore we support the production of rubber where rubber is being produced, and we don't develop a new supply of rubber in our own Nation, although we might grow guayule plants. Did that policy perhaps go too far?

Mr. JONES. I think I can answer your question. I don't believe, have never believed, that we could manufacture substitute rubber for natural rubber at anything like the price. I suspect that the rubber which comes to us at, say, not more than 15 cents a pound, the natural rubber, if there were competition—as has been shown—would go down considerably. But I don't believe we will ever make rubber satisfactorily that will compete with natural rubber. The Standard Oil Co. has not encouraged any of us in the belief that the butyl rubber, which is the cheaper rubber, is a success. I think they believe now, at least they are coming out now indicating, that they think it will make a perfectly good tire for 30 miles an hour, maybe.

Senator BURTON. That is to say that, except for the war, there wouldn't have been a necessity for developing synthetic rubber here as an industry.

Mr. JONES. None whatever.

Senator BURTON. But that brings me directly to this guayule rubber, in which Mr. O'Neil,<sup>1</sup> in his pamphlet, points out that that grows in this country, or can be grown in this country, as he estimates it, at 10 cents per pound. Isn't that a type of natural resource of this country and particularly of our arid regions that should have had development during this period?

Mr. JONES. Well, inasmuch as it was not developed, I assume that it could not be developed on a profitable basis.

Senator BURTON. We are now undertaking to develop it, I take it.

Mr. JONES. We are now undertaking to develop it, without regard to price.

Senator BURTON. But 10 cents per pound would be all right, if it could be done at that price.

Mr. JONES. Yes; but 50 cents might be just as accurate as 10, Senator. I assume that if they could grow it at 10 cents a pound, and produce it, they would be doing it, and we wouldn't be paying 20 cents a pound for it from the Far East.

Senator BURTON. Without taking too much time on it—

Mr. JONES (interposing). Take all you like.

Senator BURTON. Mr. Henderson estimates 1,000 tons in 1943 from United States-grown guayule and 5,000 in '44.<sup>2</sup> Can you raise that a bit?

Mr. JONES. That isn't very much rubber.

Senator BURTON. No; that is why I am urging you to indicate whether or not your study of it would indicate that we might do considerably more than that.

<sup>1</sup> William O'Neil, president, The General Tire and Rubber Co.

<sup>2</sup> Exhibits Nos. 351, 352, and 353, appendix, pp. 4555-4553.

Mr. JONES. Well, if we can believe information that comes to us from apparently reliable people, we ought to get several thousand tons. I am of the opinion—and I am not sure about this—that we probably can get eight or ten thousand tons from Mexico. We got some six or seven thousand tons last year of guayule from Mexico. They produce much more of the growth in Mexico than in this country. I don't think that Mr. O'Neil, or whatever his company is, has been very successful in their effort to make this a domestic plant and grow it for profit.

Senator BURTON. But the United States Government has now authorized experimentation in that field, and you are pushing that for all it is worth at the same time?

Mr. JONES. That is correct.

Senator WALLGREN. Mr. Chairman, I might state at that point that while we were out West, we learned that the development of guayule down at Salinas came about because rubber at that time was 26 cents a pound and they felt that they could produce guayule rubber as long as rubber maintained that price. Then, in the meantime, rubber dropped down to 4 cents, and of course they abandoned all their plantations.

Mr. JONES. It was not 4 cents very long, Senator.

Senator WALLGREN. But at least it was long enough to cause them to abandon their development.

Mr. JONES. I doubt if that is a correct statement. They just couldn't do it successfully. That is all. And they are now turning it over to the Government.

Senator WALLGREN. They felt that they could develop it at 26 cents a pound successfully.

Mr. JONES. I doubt if they could, ever. They have put 2 or 3 million dollars into it, and they kept getting deeper and deeper in the hole, and they finally unloaded it on Uncle Sam.

Senator WALLGREN. The excuse they gave for deserting their plantation was that rubber had dropped down in price.

Mr. JONES. I doubt—

Senator WALLGREN. Now that it is up again, it would be profitable at the present price.

Mr. JONES. I would be surprised if they gave you the real excuse. I don't believe they can grow it at 50 cents a pound and make money out of it as a business. But if it costs 50, we would like to have it while we need it. I hope I am wrong about it.

Senator BURTON. Mr. Jones, just referring to our other source, Latin America, Central and South America, I understand from your testimony we are doing everything we can to obtain raw rubber, natural rubber from those places.

Mr. JONES. That is correct.

Senator BURTON. Is it merely a question of price? There is plenty of rubber down there in the jungles somewhere, isn't there?

Mr. JONES. I don't think there is as much rubber down there, Senator, as we have all been led to believe. As I indicated a while ago, when rubber was selling at \$2 a pound and more, the greatest amount that came any year from Latin America was 42,000 tons.

Senator BURTON. Does that still look to you like a maximum for '43 and '44?

Mr. JONES. I don't think we will get that much—anything like it.

Senator BURTON. Finally, I just want to recur for one question to this option clause or preference clause in the contracts.

Mr. JONES. Yes.

Senator BURTON. As I understand it, that leaves us at the end of the war in this situation: We can choose between governmental operation of an industry, which many people don't encourage, or we can choose an operation in the first instance by one of these large monopolies, which many people don't particularly favor if they can throw it open to industry in general. That is the result of that contract that forces us into either governmental operation, or, let's say, Standard operation on a Standard plan, if they want it.

Mr. JONES. Not necessarily. We can sell it to someone else.

Senator BURTON. You have either got to operate it yourself or sell it to them if they want it.

Mr. JONES. No.

Senator HERRING. No.

Senator BURTON. At a fair price.

Mr. JONES. We agree to negotiate with them.

Senator BURTON. Well, if they offer you a fair price based upon appraisals, and so on, and you decide not to operate yourself, you would be under a moral obligation to sell it to them, wouldn't you?

Mr. JONES. I would decide that at the time, Senator. If I was creating a monopoly, I would resolve it in favor of the Government.

Senator BURTON. Then the Government would have the monopoly, you mean. The Government could hold it, I grant you that; but if you want to throw it into private industry, we have a difficult hurdle to get over, haven't we?

Mr. JONES. I don't think it would be difficult. I think, obviously, if it was a monopoly, the man himself wouldn't want to create a monopoly, because he would know he can't have a monopoly any more under the law. They are out of fashion, so that doesn't worry me any.

Senator BURTON. I am willing to recognize that, if the Government does exercise appropriate supervision over what are now known as monopolies or cartels or what not, there might not be the danger of turning it back to them that might otherwise exist, and they might be the best people to run it, but we might have to maintain control over them of some kind.

The CHAIRMAN. Senator Brewster, do you have any questions?

Mr. JONES. I don't think that is a serious problem, Senator. I want to emphasize I don't think that the man himself or the industry itself would endeavor to buy something that was going to increase his monopoly, if he had anything like a monopoly at the time, because he can't have a monopoly. We won't let him. Congress won't let him. Public sentiment won't let him.

Senator BURTON. It took us a long time to prosecute this last suit.

Mr. JONES. It took us a long time; yes.

Senator BREWSTER. I think it can hardly be an answer for the Government to say that we would not live up to the contract which you are now making because it didn't coincide with your interests at that time. That is not considered good faith in business, is it?

Mr. JONES. I think you are trying to get a little technical there, Senator.

Senator HERRING. There is no contract to sell to the operator, is there?

Mr. JONES. I would like to answer the Senator on that.

We certainly wouldn't compound a felony, if that is what you call it, you lawyers, if by selling him a plant——

Senator BREWSTER (interposing). You are the one who is naming it, Mr. Jones; I am not.

Mr. JONES. I thought you were.

Senator BREWSTER. I said nothing about felony. I was talking about contracts.

Mr. JONES. All right.

Senator BREWSTER. You suggested it might be a felonious——

Mr. JONES (interposing). I am speaking about that figuratively.

Senator BREWSTER. Yes.

Mr. JONES. Trying to use some of your terms.

Senator BREWSTER. Well, I don't think I have used such a word, Mr. Jones.

Mr. JONES. If selling a plant meant violating a law, then naturally we wouldn't sell it to that particular fellow, regardless of what the paper might say in reading it.

Senator BREWSTER. What is the situation on priorities now? Do you any synthetic rubber plants have the highest priority?

Mr. JONES. Mr. Batt has testified that they have.<sup>1</sup>

Senator BREWSTER. And for how long has that been?

Mr. JONES. I think he testified March 3. I read it.

Senator BREWSTER. It was Mr. Henderson, I believe, who testified to that; not Mr. Batt.

Mr. JONES. No; I think it was Mr. Batt.

Senator BREWSTER. Well, it isn't material. I think we agree on the date at any rate. Perhaps the source of information might be both of them. How did it happen that synthetic rubber construction did not get the highest priority until March 3?

Mr. JONES. You would have to ask the priority fellow.

Senator BREWSTER. Well, did you have difficulty getting it? Were you trying to get it?

Mr. JONES. I suppose the men who were building the plants. I personally did not; no.

Senator BREWSTER. It wasn't brought to your attention?

Mr. JONES. No.

Senator BREWSTER. I ask you is Dr. Weidlein your expert?

Mr. JONES. He is one of our advisers.

Senator BREWSTER. He came before our committee to testify that there would be no synthetic rubber program at all unless priorities were immediately given. That was, I think, on March 1, and following that and a communication by the chairman of the committee, Senator Truman, the priority was finally granted on March 3, and you say that at no time came to your attention?

Mr. JONES. It did not.

Senator BREWSTER. Well, who was responsible for handling your synthetic rubber program?

Mr. JONES. The men who had the contracts.

Senator BREWSTER. No, no; I mean in your organization.

Mr. JONES. A good many of us.

Senator BREWSTER. Who was the one in charge of this particular problem of getting this program going?

<sup>1</sup> Supra, p. 4300.

Mr. JONES. I probably would have known about it. The men who were going to build the plant would be the fellows who were after the priorities.

Senator BREWSTER. Dr. Weidlein indicated very great concern at that time—of course that was very late, after this discussion had been going about 2 or 3 months, at that time, and following Pearl Harbor by 3 months. You said that you did not make any determination on cutting the recommendation of the Stettinius committee.

Mr. JONES. How's that?

Senator BREWSTER. The Stettinius report.

Mr. JONES. What was that?

Senator BREWSTER. You stated that you at no time made any determination on cutting the recommendation of Mr. Stettinius in the report which he filed with you.

Mr. JONES. Did I testify to that?

Senator BREWSTER. I thought you did. Didn't you?

Mr. JONES. I don't know.

Senator BREWSTER. What do you say now?

Mr. JONES. I don't remember it.

Senator BREWSTER. What do you say now—did you?

Mr. JONES. I refer to my last testimony. We adopted a program in principle and went to work. At best it was experimental. There was no magic in hundred thousand tons or whatever it was—100,000, 90,000, 60,000, or 200,000.

Senator BREWSTER. What would 100,000 tons cost approximately as then estimated?

Mr. JONES. I think our program of 700,000 tons will cost about \$600,000,000.

Senator BREWSTER. So that 100,000 tons would cost approximately \$75,000,000 to \$100,000,000?

Mr. JONES. I am confused a little bit about the figures, but the amount of money that we spend in getting this 70,000 tons, including the du Pont plant, runs I think to about \$32,000,000 or \$33,000,000.

Apparently that 70,000 tons that we will own will cost us about \$35,000,000.

Senator BREWSTER. So 100,000 tons will probably cost approximately \$50,000,000?

Mr. JONES. About \$40,000,000 on that basis. But it is on the overall program. I don't know what point you are trying to make, but I will help you make it if you will tell me what it is.

Senator BREWSTER. I am coming to that, Mr. Jones. I wanted to know about the acceptance of the Stettinius' recommendation, which I understand you have testified that you carried out as you understood it. Is that correct, that you carried out the Stettinius recommendation?

Mr. JONES. We are; yes.

Senator BREWSTER. You are carrying it out?

Mr. JONES. In effect, yes, sir. We have let the contracts.

Senator BREWSTER. On page 12 of your report to Congress in this matter you stated as follows:

Mr. Stettinius advised the building of plants sufficient to manufacture 100,000 tons of synthetic rubber a year. I discussed the matter with the President, and he approved the expenditure of up to \$25,000,000 for this purpose.

At that time you did not contemplate carrying out the 100,000-ton recommendation of Mr. Stettinius, did you?

MR. JONES. In principle.

SENATOR BREWSTER. Well, I am talking about rubber, not principle.

MR. JONES. We were not shooting, Senator, at exactly 100,000 tons because it didn't matter whether it was a hundred, or 50 or 75. It was all experimental. The plants that we will get 70,000 tons from will cost us about \$25,000,000.

SENATOR BREWSTER. I am speaking about the treatment of Mr. Stettinius' report to which you have addressed yourself chiefly here today. When you recommended to the President \$25,000,000 for this purpose, that certainly did not contemplate the 100,000-ton program at that time, did it?

MR. JONES. You are testifying.

SENATOR BREWSTER. Can you answer the question? Did the \$25,000,000 contemplate a hundred thousand-ton program?

MR. JONES. To begin with, the \$25,000,000 was just a figure like 100,000,000 pounds was a figure; 100,000 tons was a figure. We adopted the program in principle. We let contracts that will run to 60,000 tons or better, that will cost us about \$21,000,000 or \$22,000,000. We gave du Pont a letter that if we went on with the big program, we would buy the plant that it was building or would build at Louisville and we are now buying that plant.

THE CHAIRMAN. Mr. Fulton.

MR. FULTON. Most of my questions were answered in writing there; most of my questions were the ones you have already answered in written answers.

MR. JONES. Yes.

MR. FULTON. But I noted in the Standard discussion the other day that they ended their statement with a suggestion that we build as many synthetic plants as possible in order to keep value in the tremendous American investment in automobiles.<sup>1</sup> That particularly raised the question of what would be the best way to provide any civilian rubber through synthetic development. In that connection, isn't it your information that if you could find butyl rubber satisfactory, that that would be the one which would give you the least trouble from the standpoint of building the plants to produce the raw materials?

MR. JONES. Well, of course, we ought to make the rubber that can be built the cheapest, provided it is satisfactory.

MR. FULTON. It is not only the cheapest, but the easiest to acquire raw materials, is it not?

MR. JONES. If it will not meet the specifications, if it is not satisfactory for the principal purpose for which we use rubber, then we ought not to produce too much of it.

MR. FULTON. That is why I was interested this morning in your statement that they had not really given you technical information concerning Butyl rubber as yet.

MR. JONES. During our discussions back in the latter part of '40-'41, the early part of '41—we were not encouraged by the Standard people

<sup>1</sup> Supra, p. 4467.



to believe that the butyl rubber was developed far enough for us to afford to build plants for its production.

Mr. FULTON. Had you been told that it was developed far enough, you would have been interested because of the relatively greater ease of providing the raw material?

Mr. JONES. We would have.

Mr. FULTON. And the butadiene for the buna-S is a much more difficult raw material for you to obtain than the isobutylene for the butyl, isn't that true?

Mr. JONES. Substantially more expensive, yes.

Mr. FULTON. That was why I had asked whether the Standard people, but the interesting fact is that they submitted two samples rubber as improved during the last 6 months.

Mr. JONES. I am informed that the U. S. Rubber Co. and the Firestone Rubber Co. claim that the butyl tire is only about half as good as the tire made from natural rubber.

Mr. FULTON. That was the general statement also of the Standard people, but the interesting fact of it is that they submitted two samples of butyl rubber, one more than 6 months ago, which deteriorated under heat treatment, and another made from rubber as produced during the last 6 months, which when subjected to the same test did not so deteriorate. Now, I am informed by Mr. Howard that the tires that were made were made from the prior butyl rubber and not from the latter, and wasn't because they didn't want to make tires, but they didn't have enough of this new butyl rubber to make tires; and he still thinks that they won't go much over 10,000 miles, but that they might travel that distance at considerably higher speeds than the old butyl. That being so in the light of Standard's own suggestion of butyl, doesn't that mean now that it is particularly important to give in our future discussions, not our past, great importance to butyl rubber and the possible development of butyl rubber by companies, perhaps other than Standard?

Mr. JONES. You mean that we ought to give more attention to butyl?

Mr. FULTON. Yes; because the new developments now justify at least giving it great consideration.

Mr. JONES. I think we certainly ought to take advantage of whatever progress is being made, and if they have improved it enough to justify more plants, I think we ought to build some more. We haven't felt we ought to go beyond the 60,000 tons up to now.

Mr. FULTON. But you haven't been given these recent developments which they testified about?

Mr. JONES. No; we have not.

Mr. FULTON. That is all I have.

The CHAIRMAN. Has any other Senator any questions?

Thank you, Mr. Jones. That finishes the hearing for this morning, and the committee will recess until Tuesday of next week, and will examine Mr. Guthrie and Mr. Nelson at that time on the Guthrie charges at the request of Mr. Nelson. The rubber hearings will be resumed probably the week after next.

(Whereupon, at 12:45 p. m. the committee adjourned until 10:30 a. m., Tuesday, April 14, 1942.)



# APPENDIX

## EXHIBIT No. 351

[Source: Submitted by Leon Henderson]

TABLE A.—United Nations crude-rubber outlook

	1942	1943	1944
Supply—New Supplies during year:			
Crude Rubber Shipments.....	434,000	135,000	98,000
Synthetic Rubber.....	25,000	165,000	362,000
U. S. Grown Guayule.....		1,000	5,000
	459,000	301,000	465,000
Demand—United States Military Forces, Lend-Lease, South American Export:	409,000	617,000	617,000
U. S. Civilian.....	200,000	165,000	165,000
Rest of Non-Axis World.....	265,000	265,000	265,000
	874,000	1,047,000	1,047,000
Result—Supply Minus Demand.....	<sup>1</sup> 415,000	<sup>1</sup> 746,000	<sup>1</sup> 582,000
Total Stocks at Beginning of Year.....	693,000	<sup>1</sup> 278,000	<sup>1</sup> 468,000
Net Stocks End of Year for Next Year.....	278,000	<sup>1</sup> 468,000	<sup>1</sup> 1,050,000

<sup>1</sup> Deficit.

## EXHIBIT No. 352

[Source: Submitted by Leon Henderson]

TABLE B.—United Nations crude-rubber outlook

	1942	1943	1944
Supply—New Supplies during year:			
Crude Rubber Shipments.....	434,000	135,000	98,000
Synthetic Rubber.....	25,000	300,000	600,000
U. S. Grown Guayule.....		1,000	5,000
	459,000	436,000	703,000
Demand—United States Military Forces.....	409,000	617,000	617,000
Lend-Lease, South American Export:			
U. S. Civilian.....	200,000	165,000	165,000
Rest of Non-Axis World.....	265,000	265,000	265,000
	874,000	1,047,000	1,047,000
Result—Supply Minus Demand.....	<sup>1</sup> 415,000	<sup>1</sup> 611,000	<sup>1</sup> 344,000
Total Stocks at Beginning of Year.....	693,000	278,000	<sup>1</sup> 333,000
Net Stocks End of Year for Next Year.....	278,000	<sup>1</sup> 333,000	<sup>1</sup> 677,000

<sup>1</sup> Deficit.

## EXHIBIT No. 353

[Source: Submitted by Leon Henderson]

TABLE C.—United Nations crude-rubber outlook

	1942	1943	1944
Supply—New Supplies during year:			
Crude Rubber Shipments.....	434,000	135,000	98,000
Synthetic Rubber.....	25,000	300,000	600,000
U. S. Grown Guayule.....		1,000	5,000
	459,000	436,000	703,000
Demand—United States Military Forces, Lend-Lease, South American Export.....	1 306,150	1 462,750	1 462,750
U. S. Civilian.....	1 150,000	1 123,750	1 123,750
Rest of Non-Axis World.....	1 193,750	1 198,750	1 198,750
	1 655,500	1 785,250	1 785,250
Result—Supply Minus Demand.....	2 196,500	2 349,250	2 82,250
Total Stocks at Beginning of Year.....	693,000	496,500	147,250
Net Stocks End of Year for Next Year.....	496,500	147,250	65,000

<sup>1</sup> Showing effect of a 25% reduction in demand which will be met.<sup>2</sup> Deficit.

## EXHIBIT No. 354

SEPTEMBER 12, 1940.

Memorandum to the President.

From E. R. Stettinius, Jr.

Subject: Synthetic rubber.

If the Government feels there is any possibility of our rubber supply being shut off, precautionary steps should be taken now, by building synthetic plants. If these plants are needed at all, the need may be most urgent in the next 18 months, because by the end of that time we shall have our 416,000-ton stock pile, plus normal industry stocks of 150,000 tons. Since it takes approximately 18 months to erect plants, the entire tonnage necessary to provide a margin of safety should be undertaken as soon as possible. If only a part of the total is built now, the plants could not be reproduced in less than 12 or 15 months.

The Committee feels that serious consideration should be given by appropriate Government agencies to expansion as quickly as possible of our productive capacity for synthetic rubber, now 5,000 tons a year. If this is increased to 100,000 tons, it would cover our needs for strictly war purposes, and, combined with existing stocks of crude and maximum use of reclaimed, would enable the rubber industry to perform its vital functions until more synthetic rubber plants could be built.

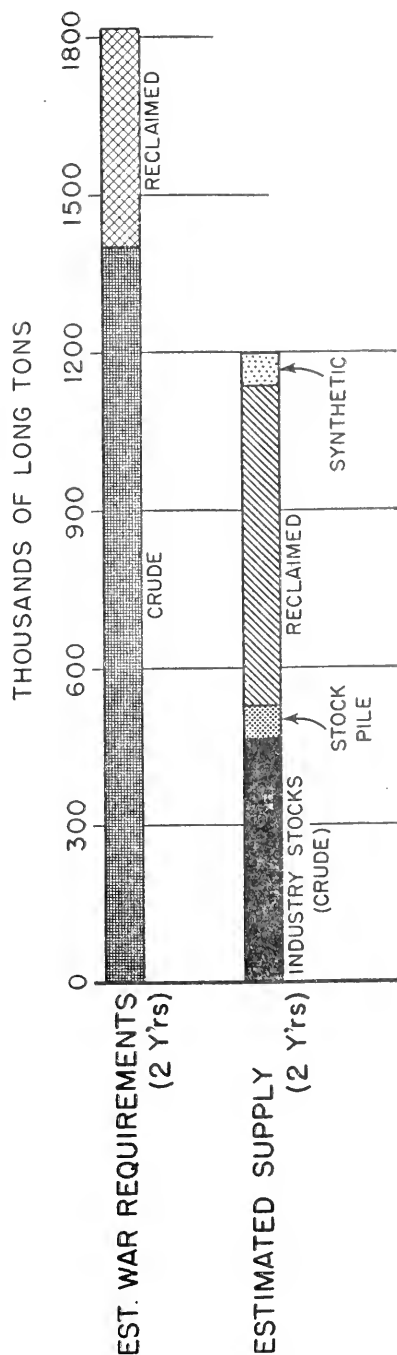
The estimated cost of 100,000-ton capacity is \$50,000,000, including necessary raw material plants. The cost of an annual capacity less than 100,000 tons, say 50,000 tons, would not be proportionately smaller, and the time required to build the plants would be substantially the same. Estimated cost of synthetic rubber with plants at maximum efficiency is 25 cents a pound, compared with about 19 cents for crude now. The existence of such synthetic plants would tend to establish a ceiling for crude rubber prices. Synthetic rubber can be used acceptably for practically all rubber products, but further experience in its use by rubber manufacturers is needed.

You will find herewith a memorandum giving the basic information relative to the matter that you might wish to have before you in considering the proposal. Attached also is a chart which portrays graphically the rubber situation.

WLF:ls.

## THE RUBBER SITUATION

ASSUMING A COMPLETE AND IMMEDIATE INTERRUPTION IN SUPPLY OF CRUDE  
AND IMMEDIATE START OF CONSTRUCTION OF SYNTHETIC PLANTS



N.B. - New synthetic plants cannot begin efficient production until 18 months after construction is begun; present stocks of crude will meet requirements for only 10½ months.

SEPTEMBER 11, 1940.

## SUMMARY OF THE SYNTHETIC RUBBER SITUATION

The construction of synthetic rubber plants for defense purposes is primarily a question of timing. How long would our present supply meet our requirements, and how long would it take to build large synthetic plants?

*Annual Requirements:*

Crude rubber	
Long tons normal-----	600,000
Tons, emergency-----	700,000
Reclaimed rubber:	
Tons, normal-----	170,000
Tons, emergency-----	210,000

Reclaimed is produced in U. S. A. from scrap rubber.

<i>Supply, July 31, 1940:</i>	<i>Tons</i>
Crude in U. S. A.-----	190,000
Reclaimed-----	<sup>1</sup> 60,000
Crude afloat for U. S. A.-----	140,000
Crude in finished goods-----	200,000

Total crude (including 46,000 tons of stock pile rubber in U. S. A. or afloat)-----	530,000
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<sup>1</sup> Not included in total.

A stock pile of 416,000 tons is being accumulated at the rate of about 25,000 tons a month, of which 46,000 tons are in this country or afloat, but the reserve supply will not be completed until the end of 1941.

Assuming that we shall receive the rubber afloat and could reduce stocks to zero, this total figure for crude represents about 10 months normal supply, 9 months emergency supply.

*Estimated Time Required to Get Synthetic Plants Into Operation.*—Eighteen months. If our supply of crude rubber is cut off and we have to build synthetic plants, it will probably be because we are at war, when demands for all types of machinery and construction would be at maximum.

There is not an overlapping period of safety; there is a deficit of time. This deficit could be met by: (a) maximum use of reclaimed rubber, 400,000 tons a year. In 6 to 9 months we could produce at that rate. (b) Curtailment of civilian uses. Even by these measures we could not stretch existing supplies much beyond 18 months.

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EXHIBIT No. 355, appears in full in the text on pp. 4287-4288

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## EXHIBIT No. 356

[Copy]

NOVEMBER 25, 1940.

The Honorable JESSE JONES,

*Federal Loan Administrator, Washington, D. C.*

Dear Mr. JONES: There has been some question raised as to the speed with which the arrangements for the production of synthetic rubber are progressing. This is only to be expected because it may be a matter of vital importance in the defense effort. I want to take this opportunity, therefore, to make a matter of record this Division's responsibility in the program.

You will recall the unsatisfactory situation which resulted when conversations were carried on between representatives of the industry and both the R. F. C. and the Industrial Materials Division of the Defense Commission. At your request, therefore, and with the approval of the Commission, I turned the whole matter over to you for final determination. With my letter to you of October 23d were enclosed a copy of my report to the Defense Commission, and the report of this Division's Chemical Group outlining the synthetic rubber situation.

The same material was sent to the President on that date, together with the covering memorandum making it clear that the whole synthetic rubber situation had been turned over to you.

You are, of course, thoroughly familiar with these facts. However, I felt it desirable that it be perfectly clear that the Industrial Materials Division of the Defense Commission is not now considering itself responsible for developments in this matter.

Sincerely yours,

E. R. STETTINIUS, JR.

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MEMORANDUM

DECEMBER 6, 1940.

To:

Mr. W. L. BATT  
Mr. GANO DUNN  
Mr. C. E. ADAMS  
Mr. BLACKWELL SMITH  
Mr. MARION FOLSOM  
Mr. R. R. DEUPREE  
Dr. E. R. WEIDLEIN  
Dr. ROBERT WILSON  
Dr. DOUGLASS BROWN  
Mr. W. A. HARRIMAN  
Mr. A. I. HENDERSON  
Mr. GEOFFREY SMITH

From: E. R. STETTINIUS, JR.

I believe you will be interested to know that at the Commission meeting on December 4th I made a copy of the attached letter, dated November 25, 1940, to the Honorable Jesse Jones relative to the placement of the responsibility for synthetic rubber development a matter of record in the minutes of the Commission.

(Signed) E. S.

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EXHIBIT No. 357, appears in full in the text on p. 4298

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EXHIBIT No. 358

[Copy]

ADVISORY COMMISSION TO THE COUNCIL OF NATIONAL DEFENSE,

10-24-40.

To: Mr. Stettinius.

From: Mr. Hillman.

The enclosed memorandum from Mr. Morris L. Cooke may be of interest to you.

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[Copy]

ADVISORY COMMISSION TO THE COUNCIL OF NATIONAL DEFENSE,

October 22, 1940.

To: Mr. Sidney Hillman.

From: Morris L. Cooke.

Subject: Memorandum from Mr. Stettinius, dated October 15, 1940, on Synthetic Rubber.

As stated in the memorandum (returned herewith), the center of activity on this subject has been transferred to the Reconstruction Finance Corporation, which agency has actively before it a proposition for loans amounting to about \$75,000,000 to build possibly five or six plants with a daily capacity estimated at 150 tons, approximately one-tenth the normal national demand for crude rubber. Several questions occur to me:

1. Does the fact that R. F. C. is considering acting as banker to several oil, rubber, and other concerns (Standard Oil, Du Pont, Goodrich, et al.) relieve N. D. C. from further activity as to synthetic rubber? I do not think so.

2. It is quite clear that the American stage is set for a rapid synthetic-rubber development. Germany supplies say 75-80 percent of her rubber needs through a synthetic product, and Russia is rapidly going on this basis. Tires, which cause 70 percent of the demand, are now on the American market, made either exclusively or largely of synthetic rubber.

3. In planning for the further consideration of this vital material within the Commission, would it not be wise to *include* in our Council those who are posted and yet approach the subject from the public in contrast with the private point of view? To date the matter has been largely handled by N. D. C. through representatives of a trade association which includes in its membership perhaps 80 percent of the private interests involved. The normal rule of a trade association is to turn down anything to which any one member objects. There are competent government employees devoting their lives to this field as well as men who, having been in private employ, are following the subject up in academic positions. Some combination of such people with men in the industry would be well equipped to settle in the public as well as private interest some of the questions raised in Mr. Stettinius' memorandum.

If you want me to go further in this matter, please advise me.

[Signed] MORRIS L. COOKE.

#### EXHIBIT NO. 359

[Washington Post, March 26, 1942]

#### STANDARD OIL WILL RELEASE NAZI PATENTS—FINED \$50,000, FIRM IS TO FREE SECRETS OF CHEMICALS AND RUBBER

(By Alfred Friendly, Post Staff Writer)

The Justice Department last night announced a consent decree against the Standard Oil Co. of New Jersey, six of its subsidiaries and three of its top officials, providing free public licensing of the huge oil concern's German-developed patents for producing synthetic rubber and gasoline.

Total fines of \$50,000 also were imposed on the companies.

The decree, accepted by the two-billion-dollar corporation on the ground that its war work was more important than the vindication it might expect from months of court trial, grew out of charges filed in Federal court that in the company's long standing tie-up with I. G. Farbenindustrie, the giant German dye and chemical trust, it had conspired to control world production and markets.

#### FIRM LOSES HUGE SUM

Principal result of the decree will be the release to all American industry, on a royalty-free basis, of thousands of patents on the process of making synthetic rubber.

It was estimated that the freeing of patents will cost the Standard Oil system between six and seven million dollars annually.

Commenting on the entry of the consent decree and the decision to plead *nolo contendere* to the antitrust case charges, the company declared that as a result of the contracts it made beginning in 1929 with the German dye trust, it was able to bring to this country "vital German discoveries" and to develop their uses here.

Many of these have had great military importance, the company said, mentioning processes for making synthetic toluol, the basic ingredient for TNT, the production of synthetic rubber from oil, and the hydrogenation process that made possible the manufacture of 100-octane aviation fuel.

It added that "the Government contended that these contracts and certain subordinate agreements and practices which have grown up under them, tended to restrain trade in violation of the Sherman Act. The company disagrees with this contention.



"The developments made under these agreements have advanced the progress of American industry and its ability to meet the war emergency. Nevertheless the company realizes that to obtain vindication by trying the issues in the courts would involve months of time and energy of most of its officers and many of its employees. Its war work is more important than court vindication. Nor has the company any desire to remain in a position which the Department of Justice considers in any way questionable."

In addition to the more than 2,000 patents, the Government indicated that the "know-how," or method in using the patents, would be furnished royalty-free. The only charge Standard Oil may continue to exact, it was indicated, will be for its "know-how" in connection with butyl, a superior type of synthetic rubber. In this case, a "reasonable charge" will be made for the industrial "savvy."

#### YEAR-LONG INVESTIGATION

The decree followed a year-long investigation by the Justice Department, and a grand-jury case in New York. It was filed in the United States District Court in Newark, N. J.

The fines, each of \$5,000, were imposed on Walter C. Teagle, chairman of the board of Standard Oil Co. of New Jersey; W. S. Farish, president of the company; and Frank A. Howard, vice president of one of the subsidiaries; on the top company, and on six subsidiaries.

The patents were held in one of these subsidiaries, Jasco, Inc., which in turn was formerly held half by I. G. Farbenindustrie and half by Standard. Although the German firm had agreed to turn over its half interest and sell its patents to Standard at a nominal fee when the war broke out, the Justice Department contended that the deal was not in fact a surrender of rights.

As a result, the Alien Property Custodian, Leo T. Crowley, became a party to the decree, taking over I. G.'s half interest in Jasco and all of the patents owned by the German firm.

#### MOST IMPORTANT CASE

The decree ended what has been described as the Nation's most important antitrust case. The Standard-I. G. relationship has been charged with being a basic restriction to past development of synthetic rubber and oils, and to have been restrictive even in its present effect.

This contention is expected to be aired today before the Senate Committee Investigating National Defense, which will hear Attorney General Thurman Arnold, in charge of the department's antitrust division

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#### EXHIBIT No. 360

[Copy]

AGREEMENT made and entered into this 9th day of November 1929, by and between:

I. G. FARBENINDUSTRIE AKTIENGESellschaft, a German corporation, of Frankfurt am Main, Germany, hereinafter referred to as "I. G.",

The S. I. G. COMPANY, a Delaware corporation, hereinafter referred to as "S. I. G.",

STANDARD OIL COMPANY, a corporation incorporated under the laws of the State of New Jersey, and

STANDARD OIL COMPANY OF NEW JERSEY, a corporation incorporated under the laws of the State of Delaware; said last named two corporations being hereinafter referred to jointly as "Standard."

#### ARTICLE I. DEFINITIONS

##### A. HYDROCARBON FIELD

Wherever the term "hydrocarbon field" is used in this agreement its meaning is:

The treatment of natural gas, crude petroleum, natural or manufactured bitumens, peats, shales, lignites, coals, other carbonaceous materials, and/or products made therefrom or contained therein to produce:

1. Those marketable major products which are now commonly produced in the oil and natural gas industries. The marketable major products here referred to are, for the purposes of this agreement, the following:

- (1) Crude petroleum.
- (2) Hydrocarbon gases consisting principally of methane and/or its homologues.
- (3) Gas black.
- (4) Intermediate hydrocarbon mixtures forming the class known as naphthas.
- (5) Gasoline.
- (6) Kerosene.
- (7) Gas oil.
- (8) Fuel oil.
- (9) Lubricating oil.
- (10) Paraffine wax.
- (11) Highly purified viscous involatile hydrocarbon oils.
- (12) Saturants, binders, and road oils.
- (13) Roofing and paving asphalts.
- (14) Petroleum greases and petrolatum.
- (15) Sulphuric acid and hydrocarbon sludges.
- (16) Petroleum coke.

2. Those marketable major products which shall hereafter be commonly produced in the oil and natural gas industries and shall be of a commercial importance corresponding to the present commercial importance of a present major product as listed in subparagraph 1.

3. Other products which, though different in chemical structure from said major products of subparagraphs 1 and 2, have the same properties to a degree which permits their use for the same purpose or purposes; but to produce said other products only to the extent that they are used for such purpose or purposes.

(Example.—Accordingly, processes for the production of aromatic hydrocarbons and methanol come within the field so far as these products are used as antiknock substances or as motor fuel. They do not come within the field when intended for use as raw material for dyestuffs and explosives in the case of the aromatic hydrocarbons, or as solvents in the case of methanol.)

The parties recognize that the above field definition may not be adequate to cover all situations which may arise. For example, certain products now or hereafter produced may present border-line cases, and a single process may produce products falling both within and without the field. With respect to all such situations in which any party shall feel that said field definition does not adequately determine the rights of the parties, the parties agree to enter into negotiations to the end of reaching an agreement which is equitable in the light of the spirit of the present agreement.

#### B. HYDROGENATION PROCESS

Wherever the term "hydrogenation process" is used in this agreement its meaning is:

Any process coming within the hydrocarbon field which is carried out by or in the presence of added hydrogen or hydrogen carriers, with or without catalysts, to a degree or extent or in a manner to secure definitely determinable hydrogenation or which is used in conjunction with the hydrogenation step for the preparation of raw materials for hydrogenation, including hydrogen, or for the separation and refining of the products produced by the hydrogenation step itself. Accordingly, the term "hydrogenation process" denotes a specific class of processes lying within the hydrocarbon field.

#### C. PATENT RIGHTS

Wherever the term "patent rights" is used in this agreement its meaning is:

Patents, applications for patents, divisions, renewals, reissues, and extensions of patents and applications and transferable interests in any of the foregoing. Every reference herein to the patent rights of a party hereto is intended to comprise those of which the party has now or shall have hereafter during the term of this agreement the ownership or control in the sense of having the power to

dispose of them or grant licenses thereunder, in so far as it is not precluded from so doing or bound to account to others for so doing by contracts with others in force on the date of execution of this agreement, nor shall a party be deemed to have ownership or control of a patent right because such patent right is owned or controlled by a corporation which is not in effect the sole property of that party. In the case of patent rights originating with a party as through the invention of its employees, the date of acquisition shall be assumed to be the date of the first application for patent thereon. In the case of other patent rights it shall be the actual date on which the party obtains control of such patent rights.

The expression patent rights relating to the hydrocarbon field (or to the hydrogenation process) shall include both—

(a) those patent rights which relate wholly or principally to that field (or that process) and

(b) those which are useful in that field (or that process) and are also useful to a substantial degree in other fields (or other processes),

but in the latter case (b) only insofar as they are useful in that field (or that process).

## ARTICLE II. GRANT OF I. G. PATENT RIGHTS TO S. I. G.

A. I. G. hereby assigns and agrees to assign to S. I. G. all of its patent rights outside of Germany which relate wholly or principally to the hydrocarbon field. This assignment shall be subject to an exclusive license (excluding also S. I. G.) and right to license others, reserved by I. G., under said patent rights, for all purposes outside of said field. The reserved exclusive license and right to license others shall be royalty free, shall run for the life of the patents in question, and shall be freely transferable by I. G. I. G.'s patent rights assigned by this paragraph include the patents and applications for patent listed in Schedule A annexed hereto, it being understood that the omission from said Schedule of any patent rights owned by I. G. and coming within the scope of said assignment shall not exclude them from the assignment. The prosecution of all patent applications, present and future assigned to S. I. G. under this paragraph shall be under the direction and at the expense of S. I. G. I. G. agrees to assist in such prosecution as requested by S. I. G., the reasonable cost of such assistance to be paid for by S. I. G.

B. Under I. G.'s patent rights outside of Germany which are useful in the hydrocarbon field, but are also useful to a substantial degree in other fields, I. G. grants and agrees to grant to S. I. G. an exclusive license (excluding also I. G.) and right to license others, but only insofar as they are useful in the hydrocarbon field. This exclusive license and right to license others shall be royalty free, shall run for the life of the patents in question, and shall be freely transferable. I. G.'s patent rights under which a license is granted by this paragraph include the patents and applications for patent listed in Schedule B annexed hereto, it being understood that the omission from said Schedule of any patent rights owned by I. G. and coming within the scope of said license grant shall not exclude them from the grant. The prosecution of all patent applications, present and future, under which a license is granted to S. I. G. by this paragraph shall be under the direction and at the expense of I. G. S. I. G. agrees to assist in such prosecution, as requested by I. G., the reasonable cost of such assistance to be paid for by I. G.

C. I. G. warrants its title to the patent rights listed in the annexed Schedules A and B, and warrants that there are no outstanding rights or licenses thereunder within the hydrocarbon field. The limit of liability of I. G. under this warranty shall be the consideration paid and payable by S. I. G. to I. G. for said patent rights, as provided in Art. IV hereof. No warranty as to the validity of any patent rights transferred under this agreement is given by I. G.

D. The party holding title to any patent right coming under Paragraphs A or B of this Article shall have the first responsibility for protecting such right including the payment of all taxes thereon and each party shall keep the other informed of the status of each such right. If either party shall desire to abandon or permit to forfeit or lapse any patent right within his control, he shall first offer to transfer the control of same to the other party to permit that party to take any action required to maintain the patent right. No such transfer shall, however, affect the substantial rights of the parties under such patent right.

E. At any time I. G. may without regard to this agreement dispose of, or otherwise deal with, any of its patent rights and/or experience which do not at that time relate to the hydrocarbon field. If thereafter changes within the oil and/or natural gas industries cause the patent rights and/or experience so disposed of or deal with to become related to said field, the rights of S. I. G. thereto under this agreement shall be subordinate to the rights of third parties acquired while said patent rights and/or experience did not relate to said field.

#### ARTICLE III. GRANT OF STANDARD PATENT RIGHTS TO S. I. G.

Standard hereby agrees to assign to S. I. G. all of its own patent rights relating to the hydrogenation process outside of Germany, reserving a simple nonexclusive, nontransferable royalty free license for itself under its said patent rights.

#### ARTICLE IV. PARTICIPATION IN S. I. G. LICENSING REVENUE

A. S. I. G. obligates itself for the period of this agreement not to engage in any business save that of granting licenses under, or transferring interests in, patent rights coming within the hydrocarbon field and assigned to it under this agreement by Standard or I. G. S. I. G. proposes to issue licenses under the patent rights assigned to it under Article II and III hereof (including in such licenses the benefits of the experience of I. G. and Standard referred to in Art. X) to Standard and to others but only in consideration of substantial royalties payable to it and upon a fair and as nearly as may be, a uniform basis, having regard for the license (including experience) reserved by Standard under its own patent rights.

Licenses would probably be granted in one, or a combination of two or more, of the following three forms:

1. Unlimited paid-up licenses.
2. Limited paid-up licenses.
3. Straight operating royalty licenses.

Each license, whatever its form, would bear its proper relation to the others as regards consideration received.

Of all such royalty payments, including cash, free shares, or other consideration, received by S. I. G., 20% will be paid or assigned currently as received to I. G., except that where a license is granted in which the consideration for the use of the patent rights relating to the hydrogenation process only is on the basis of a straight operating royalty alone, coming within one of the three following paragraphs:

a. Based solely on oil (including all liquid material) charged and/or on some or all of the products obtained.

b. Based solely on some or all of the liquid products obtained from coal.

c. Based solely on any combination of *a* and *b* above, the compensation to I. G. for the use of said patent rights relating to the hydrogenation process shall be instead of the 20% above referred to, in case *a*, 2¢ per barrel on all liquid material charged to the process, irrespective of its origin or quality or of the products produced therefrom, and in case *b*, 3¢ per barrel on the entire amount of crude liquid products (paraffin included, gases and unconverted carbon and ash excluded) derived from the hydrogenation of coal, provided however, that I. G. shall not be entitled to the 2¢ per barrel on oil charged to a licensed oil treating process, if that oil has been produced from coal and the prescribed compensation of 3¢ per barrel has been paid to I. G. upon it. These payments of 2¢ and 3¢ respectively shall be made currently within sixty days after the accrual dates of the royalties as fixed by the licenses and shall continue for so long as any licensee through S. I. G. continues to hold his license on a straight operating royalty basis alone, regardless of whether the royalties provided in such license be greater or less than 5 times the said sums, and of whether said payments increase, decrease or become nil during the term of the license, provided that S. I. G. shall not be obligated to make any such payments after the expiration of this agreement, except as covered in Art. XVII.

S. I. G. agrees that in every case in which a license involving an operating royalty as the entire consideration or any part thereof, is granted under the patent rights relating to the hydrogenation process in conjunction with other patent rights relating to the hydrocarbon field, it will specify in the license the

divisible part of the consideration that is to be paid for the use of the patent rights relating to the hydrogenation process. If such divisible part of the consideration is an operating royalty coming within paragraphs *a, b, s*, above, then I. G.'s share of such divisible part of the consideration shall be 2¢ per barrel or 3¢ per barrel as provided above. If such divisible part of the consideration is on a basis not coming within said paragraphs *a, b, c*, then I. G.'s share thereof shall be 20%. In all cases I. G.'s share of the part of the consideration for the use of patent rights relating to the hydrocarbon field but not to the hydrogenation process, shall be 20%.

The examples included in Schedule C annexed hereto illustrate the intended operation of this Article.

If within two years from the date of this agreement S. I. G. shall put into effect in the United States a mutualization plan for licensing the patent rights relating to the hydrogenation process, then the compensation in full to I. G. from S. I. G. for and on account of all licenses for the hydrogenation process issued under such plan shall be 2¢ per barrel on all liquid material charged and 3¢ on all liquid products obtained from coal as above provided, instead of 20%. A mutualization plan of licensing shall be one in which the licensees themselves own the patent rights or the exclusive licensing rights thereunder.

B. All proceeds derived by S. I. G. from the patent rights assigned to it under this agreement shall be paid over in the following order of precedence:

- (a) To I. G. the amounts provided in Par. A hereof.
- (b) To S. I. G. its expenses of carrying on business.
- (c) To S. I. G. as compensation to it for carrying on the business, \$11,000 per annum or such portion thereof as remains in each year after the payment of (a) and (b).
- (d) To Standard Oil Company of New Jersey the remainder.

#### ARTICLE V. DEPARTURES FROM ARTICLES III AND IV

Standard may refrain from making the assignment to S. I. G. as provided in Art. III and S. I. G. may depart from the proposed licensing plan of Art. IV so long as the result as far as the interests of I. G. are concerned shall be the same as though the said assignment were made and the proposed plan followed and so long as the result contemplated by Arts. III and IV is effected. For example, S. I. G. may grant to another corporation for a consideration the patent rights for the hydrogenation process in the United States and to a third corporation for a consideration the patent rights for the hydrogenation process outside of the United States. These corporations shall not be empowered to engage in manufacturing operations and shall be obliged to conduct the licensing of the patent rights conveyed to them under conditions the same as those imposed upon S. I. G. under Art. IV-A hereof. S. I. G. shall not be obligated to account to I. G. for the considerations received for such grants but shall pay over the entire considerations so received to Standard Oil Company of New Jersey after deductions for its own account as provided in Art. IV-B, *h* & *c*. But S. I. G. shall be obligated to provide that I. G. receives on account of all royalty payments, including cash, free shares or other consideration received by said corporations from the licensees the compensation provided in Art. IV-A hereof to the same extent as if those licensees were licensed directly by S. I. G.

#### ARTICLE VI. GENERAL LICENSING POLICY

Standard and S. I. G. declare that it is their intention to license the patent rights relating to the hydrogenation process transferred by I. G. as well as those transferred by Standard whether or not the same are assigned to S. I. G. generally in the U. S. They cannot as yet formulate any policy for licensing in countries outside of the U. S., but declare that in their present judgment the patent rights relating to oil should not be restricted in use to Standard or to any other single unit of the oil industry in any large proportion of the world outside of the United States.

#### ARTICLE VII. STANDARD AND S. I. G. CONTINUATION OF I. G.'S PRESENT NEGOTIATIONS WITH OTHERS

A. I. G. has entered into negotiations on matters relating to the hydrogenation process with a French group and a French, Belgian, Luxembourgian group, which

negotiations have the purpose of introducing the hydrogenation process into France, Belgium, and Luxembourg. These negotiations look toward the licensing of the above groups under I. G.'s patent rights, the rendering of technical assistance by I. G., and the mutual exchange of experience. A running royalty on the finished products was mentioned as compensation for I. G. with an additional option on shares of the operating companies for I. G. or, in the alternative, a reduction in the license rate to be paid for in shares.

B. I. G. has not entered as yet, into any agreement. However, there is a certain moral obligation on the part of I. G. to continue the negotiations. Standard and S. I. G. acknowledge this and agree to continue the negotiations in place of I. G. on the above basis without guaranteeing that a final contract shall result. In the event any contract is made the compensation from the aforesaid foreign groups would be payable to S. I. G., I. G. participating only as provided by the other Articles of this contract.

#### ARTICLE VIII. GRANT OF STANDARD AND S. I. G. TO I. G. AND CROSS LICENSING

A. Standard and S. I. G. grant and agree to grant to I. G. simple nonexclusive licenses for Germany under their respective patent rights relating to the hydrocarbon field. These licenses shall be royalty free, but shall not be transferable.

B. Standard and S. I. G. grant and agree to grant to I. G. exclusive licenses (excluding also the licensors) for Germany under their patent rights relating to the hydrogenation process. These licenses shall be royalty free, but shall not be transferable.

C. Standard and S. I. G. grant and agree to grant to I. G. the right to grant licenses for Germany under their patent rights relating to the hydrogenation process to any licensee of I. G. who shall authorize I. G. to grant a simple nonexclusive, nontransferable, royalty-free license to Standard for the world outside of Germany under such licensee's patent rights relating to the hydrogenation process.

D. Standard and S. I. G. agree that they will endeavor to obtain from all licensees who through Standard and/or S. I. G. become licensed under the patent rights of Standard and/or I. G. coming within this agreement, licenses and rights to grant licenses under the patent rights of such licensees, for Germany, similar to those granted to I. G. by Standard and S. I. G. under paragraphs A, B, and C of this Article.

#### ARTICLE IX. PURCHASED PATENT RIGHTS

All assignments and grants of patent rights which are herein made or agreed to be made by Standard or I. G. to S. I. G. are subject to the following provisions, insofar as they relate to patent rights hereafter purchased by Standard or I. G. from others.

If such patent rights are offered for purchase to Standard or I. G. the one to which the offer is made shall, if the matter appears to be important to the other, and it shall be practicable to do so, seek the cooperation of the other in making such purchase, with such fair distribution of the total expense as may be then agreed upon. The refusal of the other to cooperate in and share the expense of any such acquisition shall release the acquired patent right in every way from the operation of the agreement, but the patent right may be brought under this agreement, to the extent that the acquiring party still holds the same, at any time upon payment by the other of its equitable share of the purchase price.

#### ARTICLE X. EXCHANGE OF EXPERIENCE

A. The parties agree to work together on the technical development of the hydrocarbon field, to communicate to each other during the life and within the scope of this agreement all technical knowledge and experience, past, present, and future, patented and unpatented, of which the parties are now possessed or shall hereafter be possessed in the sense of having the power to dispose of them, and also to help each other in their efforts to obtain adequate patent protection.

B. Any party may pass to its licensees all benefits of this Article properly relating to such license, but no party shall be obligated to work with or to give to any licensee of another party any unpatented technical knowledge or experience except through the intermediacy of that other party.

S. I. G. specifically agrees that it will not (without the approval of the other parties hereto) give to anyone for use outside of Germany the benefit of any of its technical knowledge or experience relating to the hydrogenation process, provided, however, that with reference to its technical knowledge and experience which is applicable both to the hydrogenation process and to other processes, I. G. shall be free to give the benefit thereof to others, but only to the extent that it is applicable to such other processes.

#### ARTICLE XI. INTERNATIONAL FREE TRADE

Each party agrees that upon the request of the other it will waive such right as it may have to enforce its exclusive patent rights, or any of them, for processes in the hydrocarbon field, against products sold for export by the other or licensees of the other and imported into the territory, or any part thereof, which is covered by said exclusive patent rights.

#### ARTICLE XII. ASSIGNMENT OF AGREEMENT

Any party may assign the whole or any part of the rights and benefits accruing to it under this agreement, with or without assignment of those obligations which are not personal and inseparable from the businesses of the respective parties. Any assignment of obligations by one party shall, however, not be effective as regards the responsibility of the assigning party to the other parties in respect thereto.

#### ARTICLE XIII. SUBSIDIARIES

A. This agreement shall be binding upon and shall inure to the benefit of the parties hereto (and the successors of substantially their entire businesses, respectively) and all subsidiary corporations which are in effect the sole property of any of the parties. Such subsidiaries shall be deemed for the purposes of this agreement only to be one with the party to whom they are subsidiary.

B. Subsidiary corporations not in effect the sole property of one of the parties, shall, as between the parties hereto, have the option of ratifying this agreement within three months of its date, or within three months after the subsidiary relationship is established, whichever is the later, and agreeing to consider themselves, for the purposes of this agreement, as one with the party to whom they are subsidiary, or of remaining strangers to the agreement in all respects.

C. "Subsidiaries" as used herein shall include corporations of which more than 50% of the voting rights is owned or controlled by one of the parties. A subsidiary of any subsidiary of a party shall be considered a subsidiary of the party, and the same shall be true of a subsidiary to any degree.

D. Each party shall advise the others of each ratification of this agreement by a subsidiary.

#### ARTICLE XIV. DEFINITION OF GERMANY

For the purposes of this agreement Germany shall mean all territory to which German patents now apply.

#### ARTICLE XV.—OBLIGATIONS AND GUARANTEE OF STANDARD OIL CO. (N. J.)

The obligations of Standard Oil Co. (N. J.) hereunder, if and so long as it shall remain merely a holding company, are limited to causing its subsidiaries which are in effect its sole property, to carry out said obligations and Standard Oil Co. (N. J.) hereby guarantees the obligations of its said subsidiaries under this agreement, and it further guarantees the obligations of S. I. G. hereunder.

#### ARTICLE XVI. TERMINATION OF OLD AGREEMENT

As of the effective date of this agreement, a certain agreement between I. G. and the Standard Oil Company, a New Jersey corporation, dated September 27, 1927, is declared to be terminated.

## ARTICLE XVII. DURATION OF AGREEMENT

A. This agreement shall be effective Nov. 9, 1929, and shall remain in force until terminated by two years written notice served by any party upon the others but no such notice shall be served prior to December 31, 1945.

B. All patent rights, including licenses, (save those covered in paragraph D hereof), which are or may be assigned or granted by any party to another by or in accordance with this agreement shall continue to be held and enjoyed by the party so acquiring them until the expiration of the respective patents, even though this agreement shall have earlier terminated, but no party shall be obligated to give to any other any technical assistance or experience with relation to surviving patent rights after the expiration of this agreement.

C. Neither Standard nor S. I. G. shall be obligated to make any payments to I. G. except as covered in paragraph D hereof, after the termination of this agreement, save for and on account of licensing revenue coming within this agreement and accruing before its termination but actually paid after such termination, but I. G. shall continue to hold and enjoy its participation in any compensation paid or accruing before the termination of this agreement, even though such payment shall cover in part rights obtained by the licensee enduring beyond the term of this agreement.

D. Excepted from the provisions of paragraphs B and C of this Article, shall be patent rights of I. G. relating to the hydrocarbon field but not to the hydrogenation process and acquired by I. G. subsequent to December 31, 1941. These excepted patent rights may, before the expiration of this agreement, be licensed by S. I. G. to others for the full term of the patents in question, but S. I. G. shall be obligated to account to I. G. as provided in Art. IV hereof in respect to any revenues received from such licenses for the full term thereof, notwithstanding the same may extend beyond the life of this agreement.

E. Effective as of the date of termination of this agreement S. I. G. shall reassign to I. G. all patent rights coming within Paragraph D, subject to such licenses as may theretofore have been granted thereunder. As to such licenses, this reassignment shall not affect the obligations of the licensee or the participation of the parties in the royalties to be paid.

In witness whereof the parties hereto have caused this agreement to be executed by their duly authorized officers in the city of Jersey City, State of New Jersey.

Attest:  
[SEAL]

	I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT,
(signed)	H. SCHMITZ, v. KNIERIEM.
	THE S. I. G. COMPANY.
By (signed)	FRANK A. HOWARD.
	STANDARD OIL COMPANY (N. J.),
By (signed)	W. C. TEAGLE.
	STANDARD OIL COMPANY OF NEW JERSEY,
By (signed)	C. G. BLACK.

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SCHEDULE A UND SCHEDULE B SIND HIER NICHT BEIGEFÜGT

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SCHEDULE C

EXAMPLE I

Company X is granted a simple nonexclusive license under the patent rights relating to the hydrogenation process to produce any products to any extent, in any manner, such license running for the life of all patents within this agreement.

For such unlimited license, Company X pays in cash the sum of "a" dollars, and agree to pay in five annual installments an additional sum of "b" dollars.

When and as such sums ("a" and "b") are received, I. G. becomes entitled to 20% thereof, even if the agreement to which this Schedule C is attached is terminated before all installments have been paid.



## EXAMPLE II

Company Y is granted a simple nonexclusive license under the patent rights relating to the hydrogenation process to produce any products in any manner, such license running for the life of all patents within this agreement, but limited to the treatment of 2,000,000 barrels of oil in any calendar year.

Company Y gives for this limited license "c" shares of its capital stock.

When and as such shares are delivered to the licensor I. G. becomes entitled to have 20% thereof transferred to it.

## EXAMPLE III

Company Z is granted a simple nonexclusive license under the patent rights relating to the hydrogenation process, but only for treating heavy fuel oil in the sump oven, to yield middle oil/gas oil, and gasoline. The royalty fixed is 8¢ per barrel of heavy fuel oil treated. The license is granted in the year 1931 and runs for a period of 17 years, after which the licensee is free to use, without further payment, all patents under which he is at that time licensed for the life of the said patents.

I. G. receives 2¢ per barrel of heavy fuel oil treated until the termination of the agreement to which this Schedule C is attached, which will be assumed to be December 31, 1947, after which it receives nothing, although the licensee continues to pay royalties until some time in the year 1948.

## EXAMPLE IV

Company XX in which Standard is interested, is granted an exclusive license under the patent rights relating to the hydrogenation process, but only for the liquefaction of coal in Lapland. The royalty is fixed at 15% of the profits of the company as determined by an accounting according to a predetermined schedule.

I. G. receives 20% of the royalties collected by S. I. G. when and as the same are collected, but only for the term of this agreement, that is, the last participation of I. G. will be in the royalties paid for the period ending December 31, 1947, assuming that this is the date of termination of the agreement to which this Schedule C is attached.

## EXAMPLE V

Company XY receives a simple nonexclusive license under the patent rights relating to the hydrogenation process for a royalty as follows:

5¢ per barrel of oil treated in the sump oven, plus  $\frac{1}{2}$ ¢ per gallon of gasoline, kerosene, or lubricating oil produced in the sump oven or elsewhere.

This licensee operates as follows:

100 barrels of a mixture of unhydrogenated and hydrogenated heavy oil and cracked tar (obtained as hereafter shown) are charged to sump oven. From this is produced 101 barrels of oil which are fractionally distilled at another place in the same refinery to yield:

- 16 barrels gasoline.
- 20 barrels light intermediate oil.
- 65 barrels gas oil.

The gas oil is cracked in a regular cracking plant (not hydrogenation) to yield gasoline and other products, including 15 barrels of tar. This tar is returned to the sump oven.

The 20 barrels of light intermediate oil are cracked in a gas oven, yielding:

- 4 barrels gasoline.
- 8 barrels kerosene.
- 8 barrels middle oil.

Four barrels of the middle oil are sold. The remaining four barrels are sent to the sump oven. The original 100 barrels of charging stock for the sump oven are, therefore, made up of:

- 15 barrels cracked tar
- 4 barrels middle oil from gas oven treatment
- 81 barrels heavy oil from crude petroleum.

Licensee XY pays royalty as follows:

For 81 bbls. heavy oil from crude, at 5¢-----	\$4. 05
For 15 bbls. cracked tar, at 5¢-----	.75
For 4 bbls. middle oil from hydrogenation gas oven (nothing)-----	
Total, on charge to sump oven-----	4. 80
For 16 bbls. gasoline made in sump oven, at ½¢ gal-----	3. 36
and 4 bbls. " " " gas oven at ½¢ "-----	.84
for 8 bbls. Kerosene " " " at ½¢ "-----	1. 68
Total, on products-----	5. 88
Grand Total-----	10. 68
I. G. is entitled to receive royalty on the charge only, as here shown:	
For 81 bbls. heavy oil from crude, at 2¢-----	1. 62
" 15 bbls. cracked tar, at 2¢-----	.30
" 4 bbls. middle oil, nothing-----	
Total due I. G.-----	\$1. 92

#### EXAMPLE VI

Company XZ purchases the four barrels of middle oil from the gas oven produced and sold by Company XY in Example V. Company XZ has a license under the patent rights relating to the hydrogenation process, but only to operate the gas oven process. The royalty rate is 8¢ per gallon of gasoline, and 5¢ per gallon of kerosene produced. Company XZ feeds the said 4 barrels to its gas ovens, producing:

- 1 barrel gasoline
- 1 barrel kerosene
- 2 barrels middle oil.

Company XZ pays royalty as follows:

Gasoline, 1 barrel, at 8¢ gal-----	33. 6¢
Kerosene, 1 " at 5¢ gal-----	21.
Total-----	54. 6¢

I. G. is entitled to receive royalty as follows:

4 barrels, at 2¢-----	8¢
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#### EXAMPLE VII

Company YY offers to take a paid-up license for coal liquefaction under the patent rights of S. I. G. and another party, relating to the hydrogenation process, paying for the complete license the sum of "d" dollars in cash.

Since I. G. is entitled to 20% of that portion of "d" dollars which is applicable to the license under S. I. G. patent rights, and nothing for that portion of "d" dollars which is applicable to the license under the other party's patent rights, it follows that S. I. G. has the responsibility of apportioning the "d" dollars between the two licenses so that I. G. may obtain its fair share thereof. S. I. G. shall discuss this question with I. G. to insure a fair solution.

If, in the above example, Company YY offers instead of a paid-up sum of "d" dollars, to pay "e" cents per barrel on all liquid products produced under the complete license, S. I. G. would pay to I. G. 3¢ per barrel of such products, there being no necessity of determining the relative values of the two licenses.

#### EXAMPLE VIII

Company ZZ is granted a license under the patent rights relating to the hydrogenation process, on the basis of a straight operating royalty based on oil treated and on liquid produced from coal. It charges to sump ovens each day 300 tons of coal and 3,000 barrels of heavy residue from crude petroleum. From the sump ovens and from the residue removed therefrom there is produced each day a total of 4,000 barrels of liquid product. It is assumed that of this total 1,000

barrels is derived from the coal, since experience has shown that the volume of oil products produced from oil charged is substantially 100%.

On account of the operations of this license, I. G. is therefore entitled to a daily royalty as follows:

3,000 bbls. oil charged at 2¢	\$60.00
1,000 bbls. crude liquid product from coal at 3¢	30.00
	<hr/> \$90.00

## EXAMPLE IX

Company XYZ is licensed under the appropriate patent rights to carry on a special low temperature carbonization process which comes within the hydrocarbon field, but is not a hydrogenation process. It pays for such license 15¢ per ton of coal treated. It is also separately licensed under the patents relating to the hydrogenation process, for a royalty of 11 cents per barrel of liquid material hydrogenated.

Company XYZ treats 10,000 tons coal per day, producing 2,500 barrels per day of tar, which it hydrogenates. It pays to S. I. G. royalty as follows:

A. For 10,000 tons coal carbonized at 15¢	\$1,500
B. For 2,500 bbls. liquid material hydrogenated at 11¢ bbl	275
Total	<hr/> \$1,775

I. G. is entitled to receive from S. I. G.

20% of Item A	\$300
2¢ per bbl. for item B	50
Total	<hr/> \$350

## EXHIBIT No. 361

[Copy]

We, the undersigned, being parties to a four party agreement dated November 9, 1929, do hereto agree as follows:

1. Wherever the term "coal" is used in the said agreement it shall include all other carbonaceous materials which for the purposes of the agreement are not to be considered as oil. Whether a nonliquid substance is to be considered as oil or coal shall depend upon whether its properties are more nearly those of the one or the other.

2. The application of Article IV A (c) of the said agreement is shown by example 8 of Schedule C thereof.

3. It is understood that ownership of stock in a company, which company owns the patent rights or the exclusive licensing rights thereunder, shall constitute ownership of such patent rights within the meaning of the last sentence of Article IV A of the said agreement.

Attest:  
[SEAL]

[Signed] I. G. FARBENINDUSTRIE AKTIENGESSELLSCHAFT,  
H. SCHMITZ v. KNIERIEM.  
[Signed] THE S. I. G. COMPANY,  
FRANK A. HOWARD.  
[Signed] STANDARD OIL COMPANY OF NEW JERSEY,  
C. G. BLACK,  
[Signed] STANDARD OIL COMPANY (N. J.)  
W. C. TEAGLE.

NOVEMBER 14, 1929.

## EXHIBIT No. 361-A

[Copy]

W. C. TEAGLE  
26 Broadway

NEW YORK, November 9, 1929.

I. G. FARBENINDUSTRIE,

A. G., Frankfurt a/Main, Germany, c/o Dr. Hermann Schmitz  
and Dr. August von Knieriem, Savoy-Plaza Hotel, New York City.

GENTLEMEN: Referring to the series of agreements dated November 9th, 1929, to which we are parties, we wish to state that it is our understanding that the discussions of the parties in connection with the negotiations of these agreements have shown that each party proposes to hold itself willing to take care of any future eventualities in a spirit of mutual helpfulness, particularly along the following lines:

In the event the performance of these agreements or of any material provisions thereof by either party should be hereafter restrained or prevented by operation of any existing or future law, or the beneficial interest of either party be alienated to a substantial degree by operation of law or governmental authority, the parties should enter into new negotiations in the spirit of the present agreements and endeavor to adapt their relations to the changed conditions which have so arisen.

Further, in the event the interest of either party should suffer from some cause which might be rectified by the change of the form of the agreements, while preserving their substance and the interest and obligations of the parties in the subject matter thereof, the parties should, and will, endeavor to revise the form of the agreements in such particulars as may be necessary to overcome the difficulty encountered.

Both parties agree that in the event of an attack by a third party brought against either of them directly or indirectly, in attempted derogation of the title to patent rights transferred hereunder, they will cooperate loyally in defense of such attack.

This letter is intended to make a record of the discussions of the foregoing subjects and of the understanding which we have of the position and intentions of the parties and of the spirit in which the parties have agreed they will approach and endeavor to carry through the readjustment of their contractual relations if such readjustment is necessary for the protection of the interests of one party and does not diminish the effective rights or interests of the other party, as fixed by the original agreements.

Yours very truly,

STANDARD OIL COMPANY (NEW JERSEY),  
By [signed] W. C. TEAGLE, *President*.

Accepted: November 9th, 1929.

I. G. FARBENINDUSTRIE A. G.  
[Signed] H. SCHMITZ, v. KNIERIEM.

## EXHIBIT No. 362

[Copy]

AGREEMENT made and entered into this 9th day of November 1929 by and between:

I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT, a German corporation, of Frankfurt am Main, Germany, hereinafter referred to as "I. G.," and

STANDARD OIL COMPANY, a corporation incorporated under the laws of the State of New Jersey, hereinafter referred to as "the Company."

WHEREAS I. G. and the Company are two of the four parties named in the agreement of even date herewith, a copy of which is annexed hereto, and the terms of which require close cooperation between I. G. and the Company, along technical lines; and

WHEREAS the Company recognizes the preferred position of I. G. in the industries known as chemical, and I. G. recognizes the preferred position of the Company in the industries known as oil and natural gas, and

WHEREAS neither party has any plan or policy of so far expanding its existing business in the direction of the other party's industry as to become a serious competitor of that other party, but each recognizes that certain overlapping of activities will exist;

NOW, THEREFORE, with a view to preventing such overlap from becoming a source of mutual irritation and unwillingness to cooperate on technical lines as is required under said four-party agreement, the parties hereto have agreed that their policies shall be as follows:

#### ARTICLE I. NEW CHEMICAL DEVELOPMENTS BY THE COMPANY

If the Company shall desire to initiate anywhere in the world a new chemical development not closely related to its then business, it will offer to I. G. control of such new enterprise (including the patent rights thereto) on fair and reasonable terms.

*Examples.* a. A development not related at all is the production of artificial silk by present methods.

b. A development related but not closely related is the production of non-hydrocarbon solvents from natural gas.

#### ARTICLE II. NEW CHEMICAL DEVELOPMENTS BY I. G.

1. If I. G. shall desire to initiate outside of Germany (as "Germany" is defined in Article XIV of said four-party agreement) a new chemical development which cannot be advantageously carried on except as a department of an oil or natural gas business, it will offer control thereof (including the patent rights thereto) to the Company on fair and reasonable terms.

*Examples.* a. The production of solvents, whether hydrocarbon or nonhydrocarbon, from olefines produced in refining oils.

b. The production of an antiknock compound to the extent that the same shall be sold to or through oil companies.

2. If I. G. shall desire to initiate outside of Germany (as "Germany" is defined in Article XIV of said four-party agreement) a new chemical development not covered by subparagraph 1 of this Article but related to the then business of the Company, as for example by use of natural gas or petroleum products, I. G. will offer to the Company a substantial but not controlling participation.

*Examples:* a. The production of fixed nitrogen from natural gas.

b. The production of acetylene from natural or refinery gas.

#### ARTICLE III. DURATION OF THIS AGREEMENT

This agreement shall continue in force throughout the duration of said four-party agreement and no longer.

#### ARTICLE IV. SUBSIDIARIES

This agreement shall be binding upon and inure to the benefit of the subsidiaries of the respective parties hereto as provided in Article XIII of said four-party agreement, to the same extent as if said Article were incorporated in this agreement, it being understood that no subsidiary corporation of the character referred to in paragraph B of said Article XIII shall have the privilege of ratifying either the four-party agreement or this agreement without also ratifying the other.

IN WITNESS WHEREOF the parties hereto have set their hands and seals on the day and year first above mentioned.

I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT,

By [signed] SCHMITZ V. KNIERHEM.

Attest:

STANDARD OIL COMPANY (N. J.),

By [signed] W. C. TEAGLE.

[SEAL]

## EXHIBIT No. 363

[Copy]

Agreement made and entered into this 9th day of November 1929 by and between:

I. G. FARBENINDUSTRIE AKTIENGESSELLSCHAFT, a German corporation, of Frankfurt am Main, Germany, hereinafter referred to as "I. G.," and

STANDARD OIL COMPANY, a corporation incorporated under the laws of the State of New Jersey, hereinafter referred to as "the Company."

WHEREAS, I. G. and the Company are two of the four parties named in the agreement of even date herewith, a copy of which is annexed hereto, and

WHEREAS, I. G. and the COMPANY desire to make provision for a cooperative policy to be followed by the Company's subsidiary, the D. A. P. G., in Germany, and I. G.,

NOW, THEREFORE, with a view to insuring such cooperation the parties hereto agree as follows:

## ARTICLE I

It is agreed that D. A. P. G. shall sell and deliver all products supplied to D. A. P. G. by I. G. as hereinafter agreed excepting motor lubricating oils and specialty products, without making a profit on such sales and deliveries. D. A. P. G. shall charge for such sales and deliveries as nearly and as accurately as same can be ascertained actual expenses incurred in making the sales and deliveries, including in such expenses depreciation at rates not higher than hitherto usual with D. A. G. P. and a fair prorata of overhead expenses, such expenses not to include taxes on profits of D. A. P. G. If and so long as an agreement exists between I. G., D. A. P. G., Rhenania and Gasolin A. G. providing for a commission to D. A. P. G. on the sales value of the products supplied by I. G. the conditions of this Article shall be met by D. A. P. G. refunding to I. G. the amount of commission D. A. P. G. may receive under such agreement.

## ARTICLE II

It is agreed that Gasolin A. G. shall to the extent that I. G. can supply same from its production draw its entire supplies from I. G. To the extent that such production will not so be supplied to Gasolin A. G. and under any agreement to Rhenania or other parties, I. G. shall have the right to supply from its production to D. A. P. G. all products in which D. A. P. G. shall trade from time to time, such as for instance gasoline, kerosene, gas oil, etc. (motor lubricating oils and specialty products always excepted) and D. A. P. G. shall directly or indirectly accept and sell and deliver such products in Germany returning to I. G. proceeds derived from such sales by crediting same currently to I. G.'s account as and when received and interest thereon and charging expenses as agreed under Article I above on the same principle and at the same interest rate, provided:

(a) I. G. delivers the total quantity of each product tendered as supply for a year as far as possible distributed over the year in accordance with the fluctuating demand of the market for each (for instance of gasoline comparatively larger quantities during the summer and of kerosene comparatively larger quantities during the winter) giving to D. A. P. G. currently reasonable notice in advance as to the quantities of each product D. A. P. G. will approximately have to sell, such notices to be given at the latest prior to October 1st of a year for the next year and to be revised in the second month of each yearly quarter for the next following yearly quarter.

(b) I. G. delivers its supplies in a manner that good delivery can be taken of same and as directed by D. A. P. G.

(c) Each product supplied by I. G. to D. A. P. G. is of a quality as currently demanded by the German market and which can readily be sold in Germany and is not inferior to the quality of the product currently sold by D. A. P. G. from supplies other than those made by I. G.

In order to ascertain the net proceeds to be returned to I. G. as above the average proceeds actually realized by D. A. P. G. from sales of all products of the same grade as supplied by I. G., deducting all credit losses, shall be the price credited to I. G.'s account for each product, such average price to be ascertained for each month. For the purpose of allocating quantities sold and

delivered during any one month to I. G. it shall be assumed that I. G.'s supplies more through the distributing system of D. A. P. G. at the same speed as all supplies of each product in question.

#### ARTICLE III

I. G. shall be obliged to supply the quantities of products once tendered, cases of force majeure excepted.

#### ARTICLE IV

To the extent that D. A. P. G. is able to sell I. G.'s products, I. G. agrees not to supply without the consent of D. A. P. G. products covered by this agreement under Article I to VIII, both inclusive, to others than D. A. P. G. with the exception of Gasolin A. G.

#### ARTICLE V

D. A. P. G. shall give precedence to the sale and delivery of products supplied by I. G. as under Art. II above, over imported or other products and D. A. P. G. shall obligate itself to make the best efforts to sell and deliver all products so supplied by I. G. up to the full extent of D. A. P. G.'s sales of each product in the German market.

#### ARTICLE VI

The Company and I. G. agree that when the total quantities of liquid products supplied by I. G. during any one calendar year, always excluding lubricating oils and specialty products, amount to 25% or more of the total German consumption of all liquid petroleum products during the same calendar year, always excluding lubricating oils and specialty products, the two parties shall meet as soon as convenient and shall discuss a fair and equitable basis upon which I. G. shall have the right to purchase shares of stock of D. A. P. G., at a price per share that will be equivalent to the then book value plus RM 27,000,000 plus any excess depreciation that may have been charged after January 1, 1929 out of undistributed profits. To preserve a true relation between increase in book value and increase in real value, the practice of D. A. P. G. shall be to put assets acquired after December 31st, 1928, on the books at cost, but if in following this practice in some special cases an asset shall be put on the books at a value higher than or lower than its real value, the difference shall be subtracted from or added to the total figure as obtained in the last preceding sentence. It has been agreed in principle that such basis shall provide that I. G. shall have the right to purchase shares of D. A. P. G. at the beginning of each calendar year in an amount always which will bring the total owned by I. G. to the same proportion of all shares as that which during the preceding year D. A. P. G.'s sales of I. G.'s supplies have been of D. A. P. G. total sales, excluding in both cases lubricating oils and specialty products. However in no case shall I. G. own more than 50% of all shares of D. A. P. G. and in case neither I. G. nor the Company is able to purchase from H. A. P. A. G. the shares of D. A. P. G. owned by H. A. P. A. G., then not more than 50% of a holding company to which the Company will in such case sell all of the D. A. P. G. shares owned by the Company. Such basis to be discussed shall also include a protection of the employees of D. A. P. G. and a full and permanent protection to the Company as the sole direct and/or indirect supplier of products sold by D. A. P. G. to the extent D. A. P. G. will not receive supplies of same from I. G. Neither the Company nor I. G. will at any time transfer or dispose of or sell shares of stock of D. A. P. G. or of the aforementioned holding company or any other interest in D. A. P. G. to a third party without the consent of the other.

#### ARTICLE VII

The percentage of quantities supplied by I. G. as against German consumption shall for the purpose of this agreement be ascertained by adding all liquid petroleum products supplied by I. G. during a calendar year and by ascertaining the proportion of this total of I. G.'s supplies to the total consumption of all liquid petroleum products in Germany for the calendar year in question, lubricating oil and specialty products in both cases excepted. For instance, suppose I. G. supplied during any one calendar year 50 units of gasoline (ton-

nage units always) and 30 units of kerosene and the total German consumption of all liquid petroleum products (i. e. gasoline, kerosene, gas oil, etc.) was 320 units, then I. G. shall be considered as having supplied 25% of the German consumption although I. G. may not have supplied that percentage of each product.

#### ARTICLE VIII

The Company guarantees that neither itself nor D. A. P. G. will follow an aggressive policy against I. G. and even if and while I. G. may supply to D. A. P. G. a major part of the product of any grade, D. A. P. G. shall endeavor to sell such product to the best advantage in the same manner as if the Company were supplying substantially all of the product of that grade. However, nothing in the foregoing shall be so construed as to mean that D. A. P. G. shall not have the right to protect its interests and its trade and to defend same against any competition. The Company agrees to endeavor to keep I. G. informed of all conditions known to it which appear to affect substantially the German oil market.

#### ARTICLE IX

D. A. P. G. will sell and deliver motor lubricating oils and specialty products which I. G. desires to market through D. A. P. G. against a commission and under I. G.'s trade marks, such commission and other details to be agreed upon from time to time for each case, in accordance with current trade practice in similar cases.

#### ARTICLE X

D. A. P. G. shall have the right always without prejudice to I. G.'s position to carry out the obligations taken over in these Articles I to IX, both inclusive, either itself or part or all of same through or by some other concern or party.

#### ARTICLE XI

All that has been agreed upon under Articles I to X, both inclusive, refers exclusively to Germany and to production manufactured by I. G. in Germany under its present and future patents for the hydrogenation process as defined in Art. I-B of said four-party agreement. The expression liquid petroleum products shall mean all liquid products derived from crude petroleum including their substitutes derived from other crude material such as, for instance, gasoline and benzol derived from lignite and coal.

#### ARTICLE XII

It is recognized that I. G. may have requirements for imported crude petroleum and/or its products for use as raw material for the hydrogenation process defined under Art. XI, also that Gasolin A. G. may have a continuing requirement for imported products.

The Company agrees to supply all such requirements of I. G. and Gasolin A. G., cases of force majeure always expected, provided that the required products are then currently sold for export by the Company. The price to be paid for such supplies shall be the regular export price of the Company for each grade of product prevailing on the day the order therefor is received. In no case shall the price to be paid be higher than the lowest price charged by the Company to others for the same grade or quality of product on the day the order is received.

I. G. agrees that it will purchase its said requirements from the Company, paying therefor the prices as above fixed, except that if in any instance the Company is not in a position to make regular deliveries of a certain product required by I. G. on a price basis as favorable as that at which another reliable supplier offers such goods for regular delivery in Germany, then I. G. shall have the right to purchase the said product from such other supplier but shall not have the right to supply to D. A. P. G. products derived from quantities so purchased, I. G. being free to dispose of same in any other way.

It is further agreed in principle between the parties hereto, that Gasoline A. G. shall purchase its requirements from the Company on the same basis as above, but for the near future the present situation shall be maintained.



## ARTICLE XIII

In consideration of what has been agreed upon under Articles I to XII, both inclusive, I. G. will pay to the Company at the beginning of each calendar year an amount equivalent to 6% of a figure which shall be ascertained in the following manner:

(a) The book value of D. A. P. G.'s assets employed in the actual sales and deliveries of its products, which was at the end of 1928 RM. 43,632,566. In ascertaining the values as under this paragraph (a), for each year the values given by D. A. P. G.'s balance sheet of each preceding year shall be taken, provided that the book value of D. A. P. G.'s assets shall be corrected as provided in Art. VI, second sentence.

(b) Excess depreciation in the amount of RM. 27,000,000.

(c) The amount of excess depreciation that has been charged since January 1, 1929, out of undistributed profits.

(d) The sum of (a) plus (b) plus (c) shall be the total basic figure.

(e) The total basic figure shall be next divided as nearly as may be between the products sold. For example, such a division may be made for the product gasoline in the manner shown as follows to give a basic figure for gasoline:

*Allocation of investments to gasoline and other products*

	Gasoline	Other products
	R. M.	R. M.
Dapolin Pumpen .....	20,828,000	
Standard Motor Oil .....		930,000
Lagereinrichtung .....		2,006,000
Eisenfässer .....	820,000	807,000
Kannen .....	886,000	
Pferde, Wagen, etc. ....	272,000	1,200,000
Personen-Kraftwagen .....	300,000	156,000
Kraftwagen u. Anhänger .....	2,500,000	543,000
Transportmittel .....	3,500,000	3,481,000
Grundstücke .....	3,500,000	1,994,000
Kontorhaus .....	1,250,000	1,280,000
Verladestellen u. Anlagen .....	12,000,000	12,101,000
Wohnhäuser u. Werkstatt .....		255,000
Total .....	45,856,000	24,753,000
	70,609,000	
	ca. 66 $\frac{2}{3}$ %	ca. 33 $\frac{1}{3}$ %

The basic figure for each product having been established as above, there shall be next determined the percentage of the total sales of such product by D. A. P. G. which was supplied by I. G. during such preceding year. The basic figure for that product shall be multiplied by the above percentages and the amounts thus obtained for the several products added to give the final figure on which the 6% is to be paid.

EXAMPLE. Assuming that I. G.'s deliveries of gasoline to D. A. P. G. were 50% of the total sales of gasoline by D. A. P. G. for the year 1928, the basic figure for gasoline would be RM. 22,928,000, and the amount payable by I. G. to the Company at the beginning of the calendar year 1929 on account of gasoline deliveries to D. A. P. G. for I. G. would be 6% of RM. 22,928,000.

## ARTICLE XIV

At the request of I. G. the proposed company to be formed jointly by I. G. and the Ruhrcoal Producers for the purpose of producing liquid petroleum products under the I. G. patents for the hydrogenation process, as defined in Art. I-B of the said four-party agreement, shall, if and so long as I. G. owns at least 50% of same, become, while it is a licensee of I. G., a party to this agreement from Art. I to Art. XIV, both inclusive. As soon as and when I. G. ceases to own at least 50% of such company, or such company ceases to be a licensee of I. G., same shall in the option of D. A. P. G. cease to remain a party to this agreement, provided D. A. P. G. exercises such option within sixty days after having received notice from I. G. regarding its reduced ownership or the

termination of the license, I. G. obligating itself to give such notice as promptly as possible always. It is understood and agreed that in case the proposed company becomes a party to this agreement, it shall, while remaining a party to same, undertake to supply from its production of liquid petroleum products including substitutes therefor made from coal under the I. G. patents all the petroleum product requirements of the Benzolvereinigung West, and shall tender as supplies to D. A. P. G. only the surplus of such production which will not be so supplied to the Benzolvereinigung West, and the Benzolvereinigung West shall obligate itself not to extend its existing organization beyond its present proportionate participation in the supply of the German demand while the proposed company will be a party to this agreement.

If and so long as the said proposed company shall become a party to Articles I to XIV of this agreement as above provided, its supplies to D. A. P. G. shall be considered as though they were supplies of I. G. itself for the purposes of Art. VI, as well as for all other purposes, but the right to purchase shares of D. A. P. G. shall be limited to I. G., the proposed company acquiring no rights whatever to purchase such shares.

If and so long as the said proposed company shall not become a party to Articles I to XIV, the figure "25%" in Art. VI shall be considered to read "20%" for all the purposes of this agreement, including Art. XV-3-A.

#### ARTICLE XV

Beginning January 1, 1944, I. G. shall have the right and obligation to exercise one of the following options:

1. To demand from the Company that the Company name within 60 days a price at which the Company shall be willing and obliged to sell to I. G. all shares of D. A. P. G. owned by the Company, or in I. G.'s option, to be exercised within 60 days after the price has been named by the Company, purchase from I. G. all shares of D. A. P. G. owned by I. G.,

Or

2. Name a price at which the Company shall in the Company's option, to be exercised within 60 days, either buy from I. G. all shares of D. A. P. G. owned by I. G., or sell to I. G. all shares of D. A. P. G. owned by the Company,

Or

3. Demand that this agreement from Art. I to Art. XIV, both inclusive, shall end with the said four-party agreement, and be replaced by one which:

A. Gives I. G. the right to purchase from the Company before the termination of the said four-party agreement, in addition to the amount I. G. may then hold, an amount of shares of D. A. P. G. sufficient to bring I. G.'s holding up to 50% of the total of the same, provided I. G. supplies at the time when such demand is made at least 25% of the German demand from own production as set forth hereinbefore under Art. VI. The basis for the price to be paid for such shares shall be the then book value plus RM. 27,000,000 plus any excess depreciations that may have been charged since January 1, 1929, out of undistributed profits, provided that the book value of D. A. P. G.'s assets shall be corrected as provided in Art. VI second sentence.

B. Gives I. G. the right to supply from its production under its hydrogenation process 50% of the current demand of D. A. P. G. of each product, the Company having a right to supply the other 50%, always excluding lubricating oils and specialty products, which shall be sold by D. A. P. G. against a commission in the same manner as provided under the present agreement.

C. Will contain a clause to the effect that representatives of the parties will meet from time to time as required by the market situation and fix by agreement the prices at which D. A. P. G. will sell those products of which it draws supplies from both parties, and D. A. P. G. shall then sell at the prices so fixed, returning to the parties respectively the amounts realized from such sales under the same conditions as those fixed for returns to I. G. under Articles I, II, and XIII. In the event the parties fail to agree upon the price at which D. A. P. G. shall sell, the lower price urged by a party shall be accepted, but in that case the party demanding such lower price shall be obligated to supply whatever quantities the dissenting party declines to supply, further provided that in case any party fails to supply during any period its full quota of a product on account of low selling prices or for any other reason, the other party shall have the right to supply the deficiency not only during such period, but in its option also during a time following of the same duration as the period itself.

D. Will contain a clause to the effect that at no time will the selling policy of the D. A. P. G. against the protest of I. G. or the Company be one which by high selling prices endangers the situation of the Company or the extent of its participation in the supply of the German demand, and, on the other hand, a clause that the D. A. P. G. will endeavor to secure the best possible return from the sales of products supplied by I. G. and the Company consistent with the foregoing.

E. In case I. G. exercises the option given it under subparagraph A of this Par. 3, then as soon as possible after the end of the fifth year of the agreement replacing the present agreement from Art. 1 to Art. XV, both inclusive, the total of supplies made by I. G. and the Company respectively to D. A. P. G. during such five years shall be ascertained, and if I. G. or the Company will have supplied in total less than their respective quotas minus 15% of same, then and in that case the undersupplying party shall sell to the oversupplying party, at the demand of the latter, shares of D. A. P. G. in an amount equivalent to the total percentage of the deficiency in its supplies. For example, suppose the Company had the right to supply 50%, but only supplied 30%, i. e., 40% less than its right, then the Company shall sell to I. G. at I. G.'s demand 40% of the shares of D. A. P. G. which the Company will own, and vice versa. However, suppose the Company had the right to supply 50% and supplied 42½%, then no adjustment in the ownership of D. A. P. G. shares shall be made. In case Rhenania has become a party to this agreement (the agreement dated Nov. 9, 1929, in which this Art. XV-3-E is included), then the supplies by I. G. to D. A. P. G. and Rhenania shall be pooled and for the purpose of this Art. XV-3-E shall be considered to have been supplied in equal quantities to each so that no benefit shall be derived for the purpose of this clause in respect to the supplies made to one company by undersupplies made to the other.

The price to be paid for the shares by the oversupplying party to the undersupplying party shall be the same as that paid by I. G. to the Company as explained above, changes in value being duly considered on the same basis.

F. Even though I. G. shall fail to exercise the right to purchase shares of D. A. P. G. given it under subparagraph A of this paragraph 3, subparagraphs B, C, D, of this paragraph 3 shall remain in effect. *Or*

4. Terminate this agreement to end with the aforementioned four-party agreement, and in this case only, start or extend, beginning not earlier than the day on which notices of termination is given, a selling organization of its own for the delivery of its production in competition with D. A. P. G. In case I. G. exercises the option given I. G. in this Par. 4, I. G. will sell to the Company all shares of D. A. P. G. it will own at the end of this present agreement (the agreement dated November 9th, 1929, of which this Art. XV-4 is a part) at the price paid for same by I. G., changes in value being duly considered on the same hereinbefore mentioned basis.

It is agreed that I. G. must exercise one of the aforesaid options within the stipulated period from January 1st, 1944, to the end of this present agreement.

In case I. G. exercises any option containing for I. G. the option to purchase shares of D. A. P. G., or obligation to sell shares of D. A. P. G. as above, and such shares are not owned by I. G. and/or the Company directly, but through a holding company, then the shares of the holding company shall take the place of the shares of D. A. P. G.

#### ARTICLE XVI

This agreement shall continue in force throughout the duration of the aforementioned four-party agreement and no longer.

#### ARTICLE XVII

This agreement shall be binding upon and inure to the benefit of the subsidiaries of the respective parties hereto as provided in Art. XIII of said four-party agreement, to the same extent as if said Article were incorporated in this agreement, it being understood that no subsidiary corporation of the character referred to in Par. B of said Art. XIII shall have the privilege of ratifying either the four-party agreement or this agreement without also ratifying the other.

## ARTICLE XVIII

It is specifically agreed that the Company shall cause its subsidiary, the D. A. P. G., to enter into with I. G. directly from time to time such contracts as may be required to put into effect the present agreement.

In witness whereof the parties hereto have caused this agreement to be executed by their duly authorized officers in the city of Jersey City, State of New Jersey.

		I. G. FARBENINDUSTRIE AKTIENGESSELLSCHAFT,
Attest:	by (signed)	H. SCHMITZ, VON KNIERIEM.
		STANDARD OIL COMPANY (NEW JERSEY),
[SEAL]	by (signed)	W. C. TEAGLE,
		<i>President.</i>

EXHIBIT No. 364

[Copy]

26 BROADWAY, NEW YORK, 13th November 1929.

I. G. FARBENINDUSTRIE A. G.,  
*Ludwigshafen a/Rh.*

GENTLEMEN: Referring to our agreement of November 9, 1929, it is understood and agreed between us that if your company should acquire shares of the D. A. P. G. (or of a holding company owning shares of D. A. P. G.) as provided in said agreement, then while you are holding such shares you and we will advance to D. A. P. G. on loan any funds D. A. P. G. may require for the conduct and/or expansion of its business. Such loan shall be made in proportion to our respective holdings of D. A. P. G. shares (or of shares of a holding company owning shares of D. A. P. G.) and the interest thereon shall be 6% per annum until and unless otherwise agreed upon between us.

It is further agreed that if at any time either of us acquires from the other under the aforesaid agreement, shares of D. A. P. G. (or of a holding company owning shares of D. A. P. G.) the acquiring party shall take over from the other party a proportionate amount of any such debt which D. A. P. G. then owes to said other party.

The above depends upon D. A. P. G. closing an agreement under which it will sell and deliver products supplied directly or indirectly by one of our subsidiaries and return proceeds from sales of same to such subsidiary on the same basis as agreed with you.

	STANDARD OIL COMPANY (NEW JERSEY),
Accepted:	By [Signed] W. C. TEAGLE.

I. G. FARBENINDUSTRIE A. G.,  
[Signed] H. SCHMITZ, V. KNIERIEM.

EXHIBIT No. 364-A

[Copy]

26 BROADWAY  
*New York, 14th November 1929.*

I. G. FARBENINDUSTRIE A. G.,  
*Ludwigshafen a/Rh.*

GENTLEMEN: It is agreed between us that payments due to the Standard Oil Company of New Jersey under Article XIII of the German Sales Agreement concluded between us under date of November 9, 1929, shall be reduced by an amount equal to six percent per annum on any sum paid by you to us for the acquisition of D. A. P. G. shares.

	STANDARD OIL COMPANY (New Jersey),
By (Signed)	W. C. TEAGLE,
	<i>President.</i>

Accepted:  
November 14th, 1929.

I. G. FARBENINDUSTRIE A. G.,  
(Signed) H. SCHMITZ, V. KNIERIEM.

## EXHIBIT No. 365

MEMORANDUM OF MEETING AT AMBASSADOR HOTEL, NOV. 15, 1926

Present: Messrs. Bosch, Schmidt, Gauss, Von Knieriem, Pickhardt, Riedemann, Howard, Clark.

The discussion was started by Von Knieriem stating that, since the last conference, Mr. Howard had submitted draft of a suggested clause for the agreement attempting to define the process. After careful consideration of this by I. G., they felt they could not now subscribe to any description as a warrant of the value or accomplishment of the process. It is the feeling of Dr. B. that no statement of the value of the process or the results that may be expected from it can be made until after full commercial operation of the new plant now under construction. He feels this is true not only as to what the process will give in yield of product but also as to cost of product, and therefore, I. G. must request deferment until these facts are determined by commercial operation.

Von Knieriem then referred to Article 5 in the draft of the agreement dated November 12th, section E—"The products produced in the territory of the U. S., within the joint field, shall be entirely free to enter into foreign commerce, etc." This would come into conflict with the existing contracts of the I. B. C. in some of the major countries. I. G. will endeavor to trade with I. B. C. in a way to admit N. J. and must also talk with R. D. No time will be lost, as these negotiations will be carried on while the commercial plant is being completed and put into operation to prove the value of the process. He felt that the details of this agreement with N. J. can be worked out and the agreement signed six to nine months later instead of endeavoring to agree upon all the details now and signing an agreement that might have to be changed at that later date.

After some discussion of this point between H. R. and the I. G. members, which was not interpreted, H. R. stated that he felt he is standing in a neutral position and in that way might ask that, since it is the evident desire of I. G. to get N. J. into the I. B. C., what would be the value of such to N. J.

Dr. B. said that coming into the I. B. C. would not give to N. J. the right to the I. G. patents. The value to N. J. must therefore come from I. G. and N. J. joining on all patent matters.

H. R. then explained that the meaning of the warrant of value of the process as drawn by Howard was in effect a 6¢ cost on the gallon of gasoline, for the reason that the 3¢ per gallon cost named was on 100% of distillate, only 50% of which would be gasoline. He said this warrant for description of process was injected into the agreement simply as a basis for discussion.

Dr. B. stated that they are all "at sea" on their figures and that he now feels that, with the information he has obtained and which has been so freely given to him since his arrival here, they cannot give any estimate as to cost of product from the process.

Howard then stated that, in talking with Dr. Gauss at Ludwigshaven, he had gotten three points on the process:

1. That the distillates would be free from asphalts.
2. That the distillates would be free from sulfur.
3. That it would be cheaper to produce a distillate yielding 50% of gasoline than to attempt to produce 100% of gasoline in the cycle.

It was from this information that he had written the definition.

Dr. B. stated that he now sees clearly that we should have some sort of a warrant as to the value of the process before going on with I. G. He cannot, however, give this; neither can he consider giving us what would amount to an option as to signing the agreement subject to the proven commercial value of the process. He feels that competition is such as to make it difficult, if not impossible, to complete the agreement at this time. He does not give much value to the signed agreement, for the reason that he feels that both I. G. and N. J. are in full accord on the principle that they wish to join forces along the lines that have been discussed. Since I. G. now know that they can work with N. J., they think it unnecessary to now attempt to complete the agreement for signature.

Further discussion was had between H. R. and the others without translation.

Von Knieriem then asked that he be permitted to take up two or three other points in the agreement. First, as to the duration. It was his thought that

the agreement should continue until 1962 and Howard thinks that it should continue to 1937. He said that it was his idea and that of I. G. that the joining of the two companies should be a full marriage and not in part—either a full participation for the entire period or nothing.

Dr. B. stated that, for the shorter period suggested by Howard, there would ensue trouble with licensees. The ten-year period would be one of development of the process, and if such development were discontinued there would be nothing left but the dead body of continuing licenses that had been made. He felt that the length of time should be given very careful consideration, and he believed that the longer period is much preferable.

Von Kuieriem then referred to Article 11:

He stated that neither he nor Howard liked this, but that it was a very difficult thing to cover and I. G. agreed that it should be left out.

H. R. said that he did not like the phrase, "The two parties will try to agree, and failing to do so, either party may withdraw."

Dr. Schmidt stated that there might be conditions arising which would make it necessary for I. G. to assign the agreement to others, citing a possible situation that might arise from Germany carrying out the Dawes Plan.

H. R. asked how I. G. would propose to proceed under such conditions. If it could not be done as I. G., would it be thru a holding company to own the patents and carry thru the agreement, and asked whether it was the wish that either party should have the right to transfer the agreement to others?

Howard said that, under the agreement as drawn, either party could transfer to a subsidiary.

H. R. said that either party might want to transfer to a holding company but not to a subsidiary. He stated that, if either party made such transfer, the principal making the transfer must guarantee the fulfillment of the conditions of the agreement.

Von Kuieriem stated that I. G. would prefer to have the draft of the agreement right and not have to ask for changes later. For that reason they had discussed Article 11 at some length.

H. R. restated his objection to Article 11 as drawn and said that he would like to see a clause included that would permit transferring the agreement bodily to another party, but such transfer not to relieve the principal of any responsibility attaching to the agreement. He felt sure that I. G. would come to this view in less than six months and asked for that right if it were not now included in the agreement.

Further discussion was had without translation, but H. R. said that I. G. feels that it would be best to eliminate from the article the phrase "failing to agree, etc."

Von Kuieriem then referred to Section E of Article 5 on products of the process from the U. S. entering freely into foreign commerce and stated that he would prefer to leave further discussion of this until after all other points had been cleared up.

H. R. stated that this right was given to N. J. in other parts of the agreement but had been put into this form to call it clearly to the attention of I. G.:

Von Kuieriem then referred to the Ludwigshaven draft submitted by N. J. in support of a restriction of the product from the process to the country in which it may be produced.

Dr. B. stated that he clearly sees it is impossible to apply this restriction to the U. S. for the reason that the products from the process could not be identified and said that such restriction should not enter into this agreement. Under the I. B. C. license contracts, there are restrictions that will clash if the process products from other countries come into the market in competition where the process is being worked. He stated that some of the I. B. C. license contracts contain a clause specifically preventing the importation of products from the process from other countries.

After further discussion, all agreed that it would be best from every standpoint to have free commerce in the process products. I. G. in trading with I. B. C. will endeavor to eliminate all restrictions as to imports of process products from the license contracts.

Von Kuieriem then referred to N. J.'s contracts now in existence with other owners of cracking process and disposal of license revenues and asked if these contracts or agreements would in any way block N. J. giving to others rights that might accrue to N. J. under the process.

Howard said no, that no possible complications could arise along this line except as to the Cross Process. He had explained to Von Kuieriem that this

contract is being rewritten and in its revised form will specifically eliminate processes covering hydrogenation. He thought this would then free all N. J. present contracts from rights under the process.

Von Knieriem stated that he believed I. G. has no contracts or agreements that would in any way conflict with the proposed agreement with N. J. He stated that I. G. has contracts covering dyes, pharmaceutical products, etc., and that they would be carefully considered to see that no conflict might arise.

A considerable part of the discussion on the various points above outlined was not fully translated, or only in part, and it would be of value to ask H. R. to dictate a memorandum more fully covering the various points.

#### EXHIBIT No. 366

##### MEMORANDUM RE READJUSTMENT OF JASCO

Whereas, under an agreement of September 30, 1930, I. G. and S. O. Dev. Co. agreed to cause to be originated a jointly owned corporation, to which they should assign certain patent rights, and whereas pursuant to said agreement there has been organized a corporation of Louisiana, under the name Jasco, and whereas it has been heretofore settled and agreed between the parties that Jasco is, pursuant to said agreement, the equitable owner of all patent rights of the parties relating to certain processes known as follows:

1. Paraffine Oxidation.
2. Acetylene Arc process.
3. Oppanol process,
4. Buna process,

and whereas the parties desire to readjust their respective rights to and in the said processes and in any other processes which shall come within the said agreement of September 30, 1930, it is agreed as follows:

I. I. G. agrees to assign and transfer to S. O. Dev. Co. all of I. G.'s rights, title, and interest in and to the stocks issued to it by and standing in its name on the books of the said corporation Jasco. It is understood that said stock is now held by Heidelberg Ikkelheimer & Co., of New York, as security for a loan of \$40,000—made by Hambros Bank Ltd., of London, to I. G., but I. G. will in due course regain said stock and deliver it to S. O. Dev. Co., and in the meantime S. O. Dev. Co. shall have record title, so that S. O. Dev. Co. may have the full right to vote said stocks and receive any dividends thereon. (Alternative, S. O. Dev. Co. to pay off the loan and take the stock.)

II. S. O. Dev. Co. agrees that it and Jasco will enter into a contract or contracts with I. G., substantially as follows:

I. G. assigns, quitclaims, and releases to Jasco all of I. G.'s rights, title, and interest in and to the royalties or payments to I. G., provided for in said agreement of September 30, 1930, between I. G. and S. O. Dev. Co., subject to which agreement and under the terms of which agreement Jasco has been the equitable owner of the processes heretofore listed.

In consideration of the said release and quitclaim of I. G. to Jasco, Jasco shall assign a release and quitclaim to I. G. all of Jasco's rights, title, and interest in and to the said processes for all countries of the world, except the United States of America, the British Empire, the French Empire (France, its colonies, possessions, protectorates, and mandates) and Iraq.

III. It is understood that each party intends to promote the said processes in the territory in which it has exclusive ownership thereof to the best of its ability but subject entirely to its own discretion.

IV. On request of either party (S. O. Dev. Co. or I. G.) made at any time after one year, and not more frequently than once each year thereafter, from the date hereof, the parties shall exchange reports of their respective returns from the promotion of the said processes, and if it shall appear from such reports that the division of territory of exclusive ownership between the parties as herein effected have not been equitable in its financial results as judged by the agreement of September 30, 1930, then the parties shall correct the inequity in such manner as may seem most fair and advantageous at the time.

Pursuant to the foregoing, I. G., S. O. Dev. Co., and Jasco shall make or cause to be made any formal assignments or execute any further instruments necessary to put into effect the present readjustment and any required future readjustment

of the rights and interests of the parties to the agreement of September 30, 1930.  
 [Handwritten:] This is my original copy of this memorandum exchanged  
 with Dr. Ringer at The Hague, Sept. 25, 1939.

FRANK A. HOWARD.

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EXHIBIT No. 367

[Copy]

W. C. TEAGLE,  
 26 Broadway, New York, November 9th, 1929.

I. G. FARBENINDUSTRIE A. G.,  
 Frankfurt a/Main, Germany.  
 % DR. HERMANN SCHMITZ and DR. AUGUST VON KNIERIEM,  
 Savoy-Plaza Hotel, New York City.

GENTLEMEN: Referring to the series of agreements dated November 9th, 1929, to which we are parties, we wish to state that it is our understanding that the discussion of the parties in connection with the negotiations of the agreements have shown that each party proposes to hold itself willing to take care of any future eventualities in a spirit of mutual helpfulness, particularly along the following lines:

In the event the performance of these agreements or of any material provisions thereof by either party should be hereafter restrained or prevented by operation of any existing or future law, or the beneficial interest of either party be alienated to a substantial degree by operation of law or governmental authority, the parties should enter into new negotiations in the spirit of the present agreements and endeavor to adapt their relations to the changed conditions which have so arisen.

Further, in the event the interest of either party should suffer from some cause which might be rectified by the change of the form of the agreements, while preserving their substance and the interest and obligations of the parties in the subject matter thereof, the parties should, and will, endeavor to revise the form of the agreements in such particulars as may be necessary to overcome the difficulty encountered.

Both parties agree that in the event of an attack by a third party brought against either of them directly or indirectly, in attempted derogation of the title to patent rights transferred hereunder, they will cooperate loyally in defense of such attack.

This letter is intended to make a record of the discussions of the foregoing subjects and of the understanding which we have of the position and intentions of the parties and of the spirit in which the parties have agreed they will approach and endeavor to carry through the readjustment of their contractual relations if such readjustment is necessary for the protection of the interests of one party and does not diminish the effective rights or interests of the other party, as fixed by the original agreements.

Yours very truly,

STANDARD OIL COMPANY (NEW JERSEY)  
 By (signed) W. C. TEAGLE, *President*.

Accepted November 9th, 1929.

I. G. FARBENINDUSTRIE A. G.  
 (signed) H. SCHMITZ, v. KNIERIEM.

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EXHIBIT No. 368

REPORT ON EUROPEAN TRIP

OCTOBER 12, 1939.

Mr. W. S. FARISH,  
 30 Rockefeller Plaza.

DEAR MR. FARISH: I left New York on the Clipper on August 16th with the intention of having a brief holiday in France and spending the month of September on business matters in Europe. The most important item of business was the consolidation of the I. H. P., Universal, Gasoline Products, Kellogg agencies for dealing with foreign patent rights in accordance with the plan worked out in the Long Beach meetings. In addition, I had the usual grist of contract and financial questions with the Shell and I. G. companies. Messrs. Carlisle and Asbury met me in Paris on August 21st, and after reviewing the Long Beach agreement with me they undertook to make the necessary preliminary studies during my



holiday. I left for Vichy on August 22nd. Almost immediately after my arrival it appeared that war could not be avoided, and I therefore telegraphed you for instructions. Mr. Harden replied in your absence, agreeing with my suggestion that it probably would be best for me to remain and do what could be done, event at the risk of considerable delay in my return.

I stayed in France until September 17th—a small part of the time in Vichy, but mainly in Paris—being principally occupied during this time on various aspects of the French aviation supply problem. When these matters seemed on their way to a satisfactory solution I was able, through the kindness of M. de Monzie, the Minister concerned, to obtain permission to go to England at once. (Such permits were then normally obtainable only after two weeks' delay.) In England I met by appointment the Royal Dutch gentlemen from Holland, and after some days of discussions with them and with the Anglo-Iranian people a general agreement was reached on the necessary changes in our relations with the I. G., in view of the state of war. (It may here be noted that the position of the Royal Dutch Shell group is that it is essentially British and the activities of its Dutch as well as of its American components must conform to this view.) I also had several meetings with the representatives of the Air Ministry and endeavored to assist them in coordinating their program with the French program of aviation supplies.

In view of my close association with these supply problems, both in France and England, I was somewhat concerned about the impression which would be created when it was discovered that I had left these discussions to undertake discussions in Holland with Germans interested in the same problems. Both for this reason, and because I required help to obtain the necessary permission to go to Holland, I called on the counselor of our Embassy in London and explained the situation to him. He was extremely concerned about the matter, and very doubtful whether the Embassy could permit me to proceed with my plans. I had the impression at one stage that they were contemplating calling in my passport. After discussions with the Ambassador, however, the situation was cleared completely. It was agreed that I was entirely within my rights, and furthermore, that the Embassy would not only permit me to go, but would take the necessary steps to explain the situation to the British Foreign Office, in order to relieve me of all embarrassment and to facilitate my obtaining the required permits for leaving and reentering England. The gentlemen in the Air Ministry, who I think had a suspicion of the nature of my activities in Holland, also very kindly offered to assist me in reentering England, if the Foreign Office should make any difficulties about my return, since they stated they wanted to have a final discussion with me before I left for the U. S. In appreciation of this evidence of confidence, I offered, through the Embassy, to conduct all of my discussions in Holland in the presence of a member of the staff of the American Legation at The Hague. This was not required of me, however.

Pursuant to these arrangements I was able to keep my appointments in Holland, where I had three days of discussion with the representatives of the I. G. They delivered to me assignments of some 2,000 foreign patents and we did our best to work out complete plans for a *modus vivendi* which would operate through the term of the war, whether or not the U. S. came in. All of the arrangements could not be completed, but it is hoped that enough has been done to permit closing the most important uncompleted points by cable. It is difficult to visualize as yet just how successful we shall be in maintaining our relations through this period without personal contacts.

One serious difficulty which developed was the fact that the French patent assignments were not legally complete because they lacked the certificate of the French Consulate in Berlin. Through my contact with the American Minister in The Hague I learned that our own Consulate had taken over the duties of the French Consulate. The French Ambassador at The Hague agreed that our German consular certificate would be accepted instead of the French consular certificate. At my request, the American minister at The Hague telegraphed Washington explaining this situation and asking permission to have the papers, after certification in Berlin by our Consulate, returned directly to Paris by the diplomatic courier, in order to avoid the difficulties and delays which would otherwise arise. Fortunately, the Department of State had in its files at Washington a full statement of our relations with the I. G. on these patent matters, which I had worked out with Ambassador Gibson in Berlin in September of 1938 and which had been forwarded by him to Washington.

The necessary permission from the State Department was, therefore, obtained in about three days.

I returned to London through Belgium to minimize the length of the North Sea crossing.

On my return to London I had some further discussions with the Anglo-Iranian and Shell people concerning the I. G. patent problems, and also a final meeting with the gentlemen of the Air Ministry.

I returned from Foynes, Ireland, on October 9th after a delay of five days, awaiting departure of the Clipper. The life-insurance premium quoted in London for this last voyage of the northern Clipper was 2%.

The various specific items of business dealt with during my trip are being handled in the usual way with the persons directly concerned, or by separate memoranda. There seems to be no appropriate place except this letter, however, to bring up some matters of general interest.

The first is the position of our American personnel in England, France, and Holland. First, as to France, Mr. Crampton's family is well taken care of in Le Touquet in their summer house, and the only inconvenience they are apt to suffer is that they will probably have physicians or officers quartered in their home, since all hotels and available living space are required in Le Touquet for the large hospital services which have been centered there. Because of its remoteness, entirely residential character, and military use exclusively as a hospital center, there is no reason to believe that Le Touquet will suffer during the war. Messrs. Crampton and Irish are themselves remaining in Paris for the present. Messrs. Young and Meade are still living with their families adjacent to Port Jerome. This location is certainly not the best for the families.

In London, so far as I could learn, all of the families and wives of all the American group in the International Association, save Mrs. White, were able to get to the U. S. before or during the first week of the war. The men all have satisfactory suburban locations, although they are for the present spending much of their time in their usual London quarters. The strain of the initial weeks was rather bad, but the continued quiet has relieved much of this, and the health and spirits of the entire American personnel are quite good.

The principal source of worry of the American personnel, both in France and England, at the moment is the ultimate effect of the finance control of these countries on them, coupled with the natural fear that their business careers will be adversely affected by the war, whether it continues or not. The prospect of having no job left in Europe, or a relatively unimportant one, and the alternative of surrendering their American savings and income or deserting their jobs to escape the application of finance control, makes a rather disagreeable picture. Nevertheless, no one is unduly pessimistic, and although their business, like all of the business of the belligerent countries, is now being conducted at an unbelievably low level of efficiency, everyone is carrying on cheerfully with whatever work he can do.

There is a decided state of strain in Holland, although few people have deserted the country. Our personnel and their wives are all still on duty, although it was seen probable that Mr. Bolton, who is British, would have to be on active service.

In general, the only practical way of communication between the various European countries which is still left is by telegram. Telephone is prohibited, save for limited communication outward from France on ministerial priority order. The mails are not only delayed by the censorship, which of course applies to telegrams also, but are further delayed by the uncertainties of rail and sea communication. It often requires two weeks for a letter to reach Paris from London, or vice versa.

Travel is attended with all sorts of difficulties and delays and some real peril as regards the crossing of the North Sea and the Channel. Travel permits require from one to three weeks to obtain, and then only on good showing of real necessity and national interest. Train service on the Continent, even in Holland and Belgium, is still disorganized and under military control. Rail journeys that should require a few hours take an entire day. Channel and North Sea crossings are under the jurisdiction of the British Admiralty. Although the boats are fairly regular, they have no scheduled departure times and they move only in daylight. A daily air service has just opened between London and Paris, but up to this time it is restricted to government employees or other civilians traveling on government business.

Under the above conditions it is not possible even to attempt any coordination or central control of our European operations from London or any other

point in Europe. So far as I know, during my stay in Europe, which covered the first six weeks of the war, there was not a single executive of any of the operating companies who moved out of his own country, nor any of the executives of the International Association group who attempted to make any direct contacts with the European markets, save on certain supply and shipping problems covered by telegraph.

I find myself in this report in the same difficulty which Ambassador Kennedy stated he found himself in, in trying to inform Washington on the situation. It is impossible in any report to really reflect the extent to which the industry and life of Europe has been affected by the threat of "total warfare," and by the universal reactions to this imminent threat.

From the standpoint of the Standard Oil Company (New Jersey) the most important thing which I would like to bring out is the seriousness of the financial and economic positions. Europe has already suffered injury to its economic life from which recovery is going to be terribly slow and difficult. The first place where the shoe is pinching already is the institution of complete financial controls in the belligerent countries, the effect of which will be to limit to the barest necessities of military and industrial life, the purchases of these countries which must be paid for in foreign exchange. Beyond this immediate effect, whether the war continues or not, there will be the result that the productive power of the belligerent countries for exportable goods is so seriously affected that this difficulty in securing foreign exchange will become at least a semi-permanent phenomenon, controlling all of their buying habits and internal life. The first effect will be that the oil consumption of the European markets may be materially reduced, or at least held far below the former rate of increase, for years to come. The second effect is that we shall be at a disadvantage as compared with our principal competitors, Anglo-Iranian and Shell, in supplying the military and commercial market which does exist, because they can utilize payment for their goods in sterling to a greater extent than ourselves.

We are apparently facing a real turning point in our foreign business. I discussed this matter at some length with the gentlemen in London, and I believe we are all in absolute agreement that the Jersey company must now reexamine its whole foreign business picture with a view to seeing how it can best orient itself to meet the problem of holding its own in impoverished markets, with very difficult exchange problems to meet, and against the increasing weight of more favorably located competition, and the probability of increasing government interference.

In this connection I commend to your consideration Mr. Porters' report to Mr. Crane of June 23rd.

The only ray of light discernible in this dark picture of the future of the European markets is in the possibility that necessity may drive Europe to the final adoption of some plan of federation, involving removal of customs barriers and unified industrial, financial, and foreign policies. There is quite a little talk on this matter in very influential circles at this time. The starting point of this talk is the fear that the present British-French war alliance is too weak to stand much strain. There is very real fear that the French government will either have to force England into an early peace on unsatisfactory terms, or find itself overthrown by French public opinion. To meet this pressing practical problem there is a thought of proposing to France the formation of a permanent federation with the U. K. It is recognized that such a plan might or might not be the starting point for a general federation of Western European states, along the Swiss model. Such a federation has, of course, been a dream solution of Europe's problems for a long time, but it obviously can get nowhere unless the foundation is laid for the dominant powers. A permanent French-British alliance, as a means of meeting the weakness of the present situation, might possibly supply the necessary foundation.

In any case, however, it seems that the problem of the Jersey company is to try to plan for itself the best possible course to meet problems which will be created by an impoverished Europe.

Very truly yours,

F. A. HOWARD.

FAH: MF

cc: Messrs. W. C. Teagle, Orville Harden, R. W. Gallagher, W. E. Pratt, F. H. Bedford, Jr., D. L. Harper, E. J. Sadler, T. C. McCobb, G. H. Smith, H. A. Riedemann, J. E. Crane, A. C. Minton.

## EXHIBIT 369

[Source: No. 550 (Criminal) in the District Court of the United States for the District of New Jersey.—*U. S. of America v. Schering Corporation et al.*, p. 21, par. IV]

iv. On or about January 21, 1938, representatives of defendant Schering Corporation and defendant Roche-Organon, Inc., met in Paris, France, and agreed to form a "union" for the purpose of production of certain synthetic hormones. It was agreed that production would take place in the factory of and under the exclusive supervision of the Schering Corporation and that for the duration of the contract [which was to be until December 31, 1941, with automatic two-year renewals unless cancelled one year before the date of expiration], Roche-Organon would refrain from producing these specified synthetic hormones outside of the union. This agreement also provided for the elements to be considered in the basic price of such products and the mark-up to be added. Article 7 of this agreement provides: "the existence, the content, and the details of operation of this agreement have to be kept secret by both parties notwithstanding the possible obligation of disclosing it to public officials."

## EXHIBIT No. 370

[Source: *Synthetic Rubber*, by Frank A. Howard, reprinted from the Harvard Business Review, Autumn, 1941]

\* \* \* to be produced or sold commercially in competition with natural rubber for tires. On the outbreak of the war, Germany was reported to have, in addition to a normal commercial production of Buna-N rubber, a production of at least 25,000 tons of Buna-S rubber, and to be proceeding with immediate expansion of the Buna-S production, up to the level of at least 75,000 tons per annum. This would have given Germany a total production of synthetic rubber about equal to her normal imports of natural rubber.

Elsewhere in Europe there were also government-sponsored synthetic rubber developments. Variations of the Buna form of rubber seem to have been the only ones produced in quantities. Russia has had for some years some production of this rubber, made from alcohol; and at the time of Italy's entrance into the war she was erecting a synthetic rubber plant for the manufacture of Buna rubber, after having apparently abandoned an earlier development of her own.

## POSITION OF THE UNITED STATES

The United States has long been the world's largest consumer of rubber, and rubber has been our largest item of import. Out of a total world production of 1,392,000 tons in 1940, we imported 648,000 tons. Our consumption for the first quarter of the current year was running at the rate of about 800,000 tons per annum.

The rubber supply problem, from the American standpoint, has been a matter of real national concern and often a commercial headache as well. In the years prior to the establishment of firm control over rubber supply and prices by the international agreement, the gyrations of the market were wild. The price range, based on spot quotations, seems to have spread from about 3 cents to more than a dollar per pound, and it is unfortunately true that the first effect of the effort to control supply and prices was to produce a rubber famine and a ruinous market which punished America severely. The recurrent wide price swings of its raw material has been a serious problem for the American rubber industry. Declining prices are ruinous to the companies with large inventories of crude and finished rubber products. A tire producer who attempts to take constructive measures to protect his customers against a shortage exposes himself to large inventory losses. The smooth working of the rubber control since 1937 has reduced the price swings to narrow limits, but everyone recognizes that stability achieved by agreement between suppliers who have too effective a monopoly of the trade may sometimes be gained at the expense of the consumer. The matter of determining fair prices is an extremely difficult one. The actual producing cost on different plantations varies by as much as 5 cents per pound. The natural effect of producer price control is to protect the highest cost substantial group of producers.

It is also true that, when price control of an exported commodity is accomplished under government auspices—as is the case with rubber—there is an inevitable tendency to consider the national budget as well as the cost of production of the commodity in determining what a fair price should be. In the present world emergency rubber prices have advanced from a more or less stable level of around 12 to 15 cents a pound to a level of approximately 20 cents a pound, this change probably reflecting the national necessities of the interested governments as much as it reflects any purely commercial considerations. In the United States at least there has been no word of complaint or \* \* \*

EXHIBIT No. 371

FEBRUARY 6, 1940.

Mr. E. J. SADLER.  
30 Rockefeller Plaza.

DEAR MR. SADLER: I suggest the following for Captain Puleston.

Full information concerning the technical and economic aspects of this Buna project are contained in the files of the U. S. Army and Navy Munitions Board, and we strongly recommend that Captain Puleston consult Colonel Charles Hines of the Munitions Board in order to obtain a complete picture of this situation. For Captain Puleston's convenience, however, we are answering herewith seriatim the questions he has asked:

(1) Buna is probably better in quality for most purposes than natural rubber, including its use for tires.

(2) German capacity at the beginning of the war was nominally 25,000 tons per annum. Believed to be the same at the present time.

(3) A second unit of identical size, 25,000 tons, should be completed some time during the year 1940, according to present plans.

(4) We believe that a third unit, which should be sufficient to cover 100% of Germany's rubber requirements, has been under discussion, but we do not know whether or not it is actually under way.

The interest of the Standard Oil Company (New Jersey) in the Buna processes dates back to the original agreement of 1929 between I. G. and Jersey. Pursuant to this general agreement the parties undertook to cooperate in the production of certain new products from oil and gas raw materials, and a jointly owned American corporation was organized to administer the joint interests of the parties in these fields. The Buna synthetic rubber development (to the extent the product was made from oil and natural-gas raw materials) was recognized by both parties as coming within the field of this corporation.

Following the outbreak of the war it seemed desirable for the I. G. to withdraw from this Corporation, and this was accomplished by agreements which merely were adjustments of territory and rights between the parties and did not involve any cash considerations of any kind. The withdrawal of I. G. from participation in the American company left Jersey in sole control. These transactions seemed too complicated to be referred to in general publicity, and therefore Jersey's public statement was limited to an announcement that the I. G. had withdrawn from participation in the Buna development in the U. S. This statement was handled by the newspaper rewrite men with their usual freedom.

In reply to Captain Puleston's general question as to whether it is our impression that Germany is pressed for foreign exchange, or that it is exporting manufacturing processes and patent rights as a means of obtaining foreign exchange, we have the following comments to make:

(1) Our own German subsidiary has been eminently successful in living up to its obligations to us and continuously reducing the balance which it owed to Jersey on the outbreak of the war, although Jersey has no means whatever of bringing any direct or indirect pressure to bear on this account, under war conditions.

(2) About one month after the outbreak of the war, Ethyl G. m. b. H., a German company owned 50% by the British Associated Ethyl Co. and 50% by I. G. Farben-Industrie, paid up in full a cash debit of nearly \$900,000 which it owed to Ethyl Gasoline Corporation of the U. S., and payment of which it could have deferred, without being in actual default, for two months longer.

(3) These circumstances we believe indicate that, whatever pressure there may have been on Germany for foreign exchange up to this time, has not been sufficient

to deter them from behaving with the utmost correctness with regard to their private commercial debts of which we have knowledge.

(4) Concerning the export of manufacturing processes or patent rights as a means of obtaining foreign exchange, this has been a general German policy for fifteen years, resulting from their learning by experience that if they did not, within a reasonable time after the commercialization of new processes secure their exploitation abroad by appropriate deals, unlicensed competition would pirate the new processes, leaving the originators neither an export market nor anything to sell in the way of patent rights and technique. The guiding rule in the German chemical industry for the last fifteen years has been to seek to make sales of the foreign rights, although since the rule is not based upon theory but upon practical considerations, there have certainly been exceptions where the individual conditions did not warrant its application. There has been no change in this situation that we know of since the war, except in a direction the reverse of that which Captain Puleston indicates, i. e., since the war the Germans have refused to permit to pass out of Germany technique with relation to most of their newer processes, and this refusal to let the technique go has of course prevented the most effective sale of these processes.

Very truly yours,

FRANK A. HOWARD.

FAH: MF.

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EXHIBIT No. 372

STANDARD OIL DEVELOPMENT COMPANY,  
26 Broadway, New York, July 27, 1936.

Mr. E. F. JOHNSON.  
30 Rockefeller Plaza.

DEAR MR. JOHNSON: I have reviewed your excellent summary of our principal contracts relating to the chemical business. In accordance with your request I am further summarizing the position in the respects in which we agreed such a further summarization would be of most interest to our associates.

The I. G. may be said to be our general partner in the chemical business as to developments arising during the period beginning in 1929 and expiring in 1947. The desire and intention of both parties is to avoid competing with one another and by these means to permit their technical organizations to cooperate wholeheartedly to their mutual advantage. This arrangement is set forth very clearly in the Division of Field agreement. It is always dangerous to summarize arrangements which are themselves the briefest possible accurate summary of all the subject matter to which they relate but an understanding of the relationship of the parties involved in this loose general partnership on chemical business is as follows:

1. The assumption is that the I. G. are going to stay out of the oil business proper and we are going to stay out of the chemical business insofar as that has no bearing on the oil business.

2. The implied assumption which is clear to both sides and has been much discussed, that the field of oil specialties for example pharmaceuticals and insecticides, is one in which the two parties are and necessarily will be competitors, and that there is no help for this and any commitments which they may make with respect thereto would not alter this.

3. As regards the chemical business (other than oil specialties) related to the oil business, we have a very wide range of conditions to deal with. In the first place, both parties have certain commitments already, such for example in our case as the Ethyl Gasoline agreement and the alcohol commitments (through the original Melco group), and in the second place, both parties are engaged in very complicated businesses and may find it necessary to accomplish purposes directly related to their existing businesses to make agreements which might tie their hands to some extent as to the future disposition of developments in their border-line field of oil, and chemistry. Both parties must necessarily retain a free hand in this respect.

4. Regardless of whether the new development fits into the border line between oil and chemistry, each party must be compensated in a fair way for the development in which it grants the other participation. Failing an agreement as to a fair compensation the partnership breaks down as to that development.

5. Subject to the above limitations, the general theory of the agreement is that chemical developments which are more closely related to the oil business than to the outside chemical business remain in control of Standard with I. G. participating in some manner to be agreed upon at the time with respect to each development, whereas developments which are more nearly akin to the outside chemical industry than to the then existing business of Standard pass to the control of I. G. with suitable participation by Standard.

The following specific question clarifies the situation: "What new chemical development is Standard free to make or acquire without any obligation to bring I. G. into the picture in any way?" The answer to this question is that Standard remains free to enter into any new chemical development it pleases (not originating with I. G.) and without offering any participation to I. G. provided that such development is closely related to the then business of Standard.

Since the standard of comparison is not the 1929 business of Standard but its business at the time the question arises, the effect (which both parties understand) is that Standard has unrestricted liberty to proceed absolutely independently of I. G. if it so desires in the natural evolution of the oil business in the direction of the chemical industry.

This natural evolution covers all of the fields in which Standard has up to the present time had any ambitions and so far as the present policy of the Development organization is concerned, it represents the only field in which we intend to make any aggressive efforts. Examples of such efforts are the voltolization technique in which oil products with and without other oil products are converted into a wide variety of chemicals, and the production of addition agents for oils, such as inhibitors, oiliness agents, etc., from raw materials drawn in part from the oil industry.

The only chemical developments which we are engaged in at the present time are basic new developments brought to us by the I. G. under the terms of the "Division of Fields" agreement, in which oil or gas as raw materials are used for the manufacture of chemical products; these developments are the acetylene acetic acid development (which was originally intended to and may yet go forward to synthetic rubber), and the fatty acid development.

Summarizing again therefore Standard is free of all engagements in the evolution of its natural business in the direction of the chemical industry. It is of course free as regards commitments in the antiknock and alcohol fields antedating the I. G. agreements and in the evolution of these fields as well, and it is free to make contracts relating to its existing business which has, incidentally the result of carrying with it commitments on some branches of the chemical field.

We have lived under the I. G. relationship for about one-half of the total term, considering the fact that the relationship actually began about two years before the contracts were actually executed. The chemical side of the arrangement has been satisfactory to both sides and profitable to us at least through this period. The arrangement is one which necessarily requires real good will on both sides. The personnel of the I. G. with whom we shall have to deal in this respect has changed somewhat during this ten-year period but there is no indication that the new executives will not be able and willing to work with us in the same spirit of good will in which the earlier group worked.

One additional fact might be pointed out: for a variety of reasons it seems quite probable that if we desire to make any additional important affiliations in the oil chemical field, such affiliations will be either with the du Ponts, the Shell Company, or both. The I. G. relationship is in no respect a handicap but on the contrary, a definite asset to us in considering the possibility of any such affiliations.

Very truly yours,

FRANK A. HOWARD.

FAH:CFG

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EXHIBIT No. 373

MEMORANDUM OF MEETING, MARCH 21ST, 1929

Place: Board Room, New York City.

Present: Messrs. Bosch, Gaus, Schmitz, von Knieriem. of the I. G.; Teagle, von Riedemann, Clark, Howard, Haslam, of S. O.

Dr. BOSCH opened the meeting by reviewing our discussions at Heidelberg and their objections to our proposition of last summer. With respect to our recent proposition, he stated that the I. G. were willing to discuss it but the following points were not clear:

1. The fields of the two companies should be kept separate. The I. G.'s primary business is synthetic organic chemicals, while the field of the Standard is petroleum. If an agreement is reached taking the I. G. out of the oil business, except in Germany, it should be possible to clearly define the fields of the respective companies.

2. They wished to discuss the form in which the 20% of the license fees were to be given to I. G.

3. Dr. Schmitz was, of course, particularly interested in the financial consideration and the form it would take.

Dr. BOSCH stated that the I. B. situation was not clear even to the I. G. but that all necessary information would be given to the Standard on this point.

Dr. BOSCH then discussed point No. 1 above. He stated that it was his impression that the Standard was only interested in the petroleum business. The I. G. would now withdraw from this field, except in Germany, and, to avoid future conflict, thought an understanding should be reached so that the Standard would not go into the chemical field (such as dyestuffs, ammonia, etc.) in competition with the I. G. He appreciated that we were in the solvent business and stated that the I. G. were willing to go along with Standard in this field, but felt that the leading factor in this field should be the I. G.

Mr. VON RIEDEMANN asked Dr. Bosch if he did not think that the Standard would be driven into the chemical field due to the similarity of coal and oil as raw materials for the hydrogenation process.

Dr. GAUS stated that hydrocarbons had a big future in the chemical field for the I. G. If a complete deal is made between the two companies, the Standard would become acquainted with the I. G.'s chemical processes, and this might bring the Standard and I. G. into contact in this field, without an agreement, and competition might develop between the two companies.

Dr. BOSCH replied, in answer to Mr. von Riedemann's question, that he expected the Standard would be driven into the chemical field and that the two companies should lay their plans accordingly.

Mr. VON RIEDEMANN stated that Standard's thought in the matter was that our coal and oil agreement with the I. G. should be in two parts:

1. Covering the United States; and
2. Covering the rest of the world, except Germany.

He pointed out that Sir Henri Deterding would be in on the second part, and suggested that, to help Standard, the I. G. put a fair division of the price we are to pay on these two divisions of the agreement. The question of our position in the chemical field should be considered in the U. S. portion of the contract.

Dr. BOSCH replied that it was not to the interests of the I. G. to separate the fields, and asked if the fact that the Shell interests had gone into the ammonia field was one of the reasons prompting Mr. Riedemann's suggestion.

Mr. VON RIEDEMANN replied in the affirmative.

Dr. BOSCH stated that the I. G. were willing to take the Shell into the ammonia field to a small extent, as the field should be big enough to include both.

Mr. TEAGLE, to explain further Mr. von Riedemann's suggested division of the contract, outlined our relation to the Shell in this matter, as follows: After our conference last year we went to Sir Henri Deterding and stated that, if we made a world agreement with the I. G., we should hold the door open to him, except that Germany was withheld for the I. G. and the U. S. withheld for the Standard. The I. G. are the only ones who can really appraise the relative value of their patents in the U. S. and the rest of the world outside of the U. S. and Germany. Also, our membership in the so-called Patent Club was pointed out as an additional reason for such a division.

Mr. VON RIEDEMANN explained the TIJ contract very briefly.

Mr. HOWARD pointed out that we were already interested in chemical and pharmaceutical specialties, such as NUJOL and FLIT, on the one hand, and solvents, on the other hand, and that we have carried out extensive research and development work in the solvent field.

Dr. BOSCH stated that he had reference not to our present activities but to future developments. He explained their agreement with the Winthrop Chemical



Co., which is to sell I. G. products. With regard to solvents, he stated that I. G. were very much interested and would like to come together with us. He stated that he desired to prevent our competition in colors, pharmaceuticals, etc., with particular reference to new products, and explained in confidence certain developments which they had already undertaken. In the matter of these new developments, he wished the management and dominant interest to be in the hands of the I. G. He stated that it was the policy of the I. G. not to go into old fields already occupied but to create new industries and new fields; that the I. G. did not wish to go into competition in the U. S. with the U. S. chemical industry.

Mr. CLARK stated that his understanding was that Dr. Bosch wished to make two contracts:

1. A coal and oil contract, in which Standard would be dominant; and
2. A new contract on synthetic chemicals, in which the I. G. would be dominant.

Dr. BOSCH replied "No," that he did not intend to make a new contract now. Mr. HOWARD inquired if he merely wished a declaration of policy.

Dr. BOSCH replied "Yes."

Mr. TEAGLE asked if he meant insofar as the United States was concerned.

Mr. VON REIDEMANN stated that such an understanding should be incorporated in the U. S. coal and oil agreement but to apply for all over the world.

Mr. HOWARD suggested not putting such an agreement on chemicals in the coal and oil patent agreement.

Dr. BOSCH stated that what he wanted was a declaration of policy covering the whole world and that it could go in the U. S. coal and oil agreement, if desirable, but he did not want to have to negotiate a new agreement later on.

Mr. HOWARD pointed out that it could not go in our present proposed agreement, since our agreement must be shown to others, and inquired whether Dr. Bosch wished us to agree not to go into the chemical business except as a junior partner.

Dr. BOSCH stated that in their chemical work they would extend to us an invitation to come in with them, as no other company would be so satisfactory to the I. G.

Messrs. BOSCH, TEAGLE, VON RIEDEMANN, and CLARK all felt that a written, rather than a verbal, understanding on this was desirable.

Mr. TEAGLE stated that we were willing to be junior partners in the chemical field provided our minority interest was sufficiently large.

Dr. BOSCH replied that they would offer us 49%.

Mr. TEAGLE again pointed out the TIJ contract and that it was obvious we could not bind ourselves more tightly than we would be able to bind our proposed licensees.

Mr. TEAGLE suggested that Messrs. Howard, Clark, von Knieriem, and Gaus get together to draw up an agreement to outline the ways and means of accomplishing the above. He stated, however, that Standard was willing to go along the line suggested by Dr. Bosch.

Dr. BOSCH stated that the I. G. would give to Standard the use of all patents except for Germany; Standard would give their patents on the coal and oil process to I. G. for Germany; and that the I. G. were to have free use of their patents for the chemical business; also, that Standard's patents on coal and oil hydrogenation to be used in Germany for other than coal and oil business (i. e., chemical business).

\* \* \* \* \*

(This closed discussion on the first point raised by Dr. Bosch.)

\* \* \* \* \*

The following discussion took place relative to the second point, i. e., the form in which the 20% of license fees would go to I. G.:

Dr. BOSCH pointed out that, if Standard took in Shell, the conditions of the Standard-I. G. agreement must be such that the I. G. position must be just as good as before taking the Shell, that is to say, Shell's participation should not eliminate the necessity of their paying the normal license fee.

\* \* \* \* \*

Mr. TEAGLE then asked for a short adjournment for separate discussion of this point.

\* \* \* \* \*

On reconvening, Mr. TEAGLE stated that Dr. Bosch's suggestion at Heidelberg that Standard take over the entire coal-oil process outside of Germany did not provide for I. G.'s continuing financial interest, which Standard considered to be highly desirable, and consequently Standard proposed that Shell, Standard, and all others would have to pay the same 2¢ per barrel royalty.

\* \* \* \* \*

Dr. BOSCH and Mr. VON RIEDEMANN, in German, discussed the French situation.

Mr. VON RIEDEMANN asked Dr. Bosch if there had been any change in the situation which led him to believe that the coal and oil process was of less interest now—politically, technically, or economically—in Germany, England, or France.

Dr. BOSCH replied there had not been any change, and stated that he had told the French group of the proposed deal with the Standard and that if it went through they would have to deal with the Standard in the future.

Mr. TEAGLE amplified his statement regarding payment of royalty by stating that this agreement placed the Standard in charge, and that Standard would offer to others and take for itself a paid-up license, of which I. G. would get 20%. Consequently, I. G. would either get 20% of all the paid-up licenses granted or else the per barrel royalty agreed upon.

Dr. VON KNIERIEM stated that he felt the German selling situation should be settled. He suggested that the men now in Germany should conclude the negotiations going on there at present. He reported his conversation with Sir Henri Deterding in connection with the proposed increase in Gasoline A. G. expenditures to enlarge facilities; and stated that it seemed to him we always considered the D. A. P. G. point so minor that it was impossible to settle it.

Mr. VON RIEDEMANN stated that he must thrash the situation out with Sir Henri Deterding and that the situation would be much better if the present negotiations with reference to the German situation were settled.

Dr. SCHMITZ stated that he would like to settle the German selling question so that the I. G. would know where they stood.

Mr. VON KNIERIEM stated that the Standard was going to give to the I. G. an outlet for its gasoline and participation in the profits. If this were left to the gentlemen in Germany, then it would be a three-party affair, which would make it awkward.

Mr. VON RIEDEMANN again went over the conference he had with Sir Henri Deterding, in which Sir Henri agreed to take 50 percent of the excess production of the I. G. over and above that Gasoline A. G. could sell. Furthermore, Mr. von Riedemann was willing to extend the cancellation clause of this agreement to three years. They have now agreed that Rhenania's selling cost would be at least two marks per 100 kilos below Gasoline A. G.'s. In spite of all this, Gasoline A. G. are asked to be allowed to increase their business 1% and are now asking for still another 1% increase.

Dr. SCHMITZ asked if it was not better to clean up the situation now.

Mr. VON RIEDEMANN replied that we would have to discuss any agreement regarding the German situation with Sir Henri Deterding. He further stated that for the present, he wished to leave the German situation and negotiation in the hands of the local people in Germany.

Dr. BOSCH stated that he wanted a distributing organization in Germany put at the disposal of the I. C.

Mr. VON RIEDEMANN stated that he was willing to agree that the D. A. F. G. would sell for a period of at least five years, with the three-year cancellation clause, which would be plenty long enough for I. G. to build up a selling organization if that appeared necessary. He further stated that Sir Henri Deterding feels that Mr. Von Riedemann might sacrifice a point in the German distribution agreement in order to gain a point in the Standard-I. G. coal and oil agreement, and that he wished to avoid giving grounds for this fear to Sir Henri.

Dr. VON KNIERIEM stated that there was another point in this connection, and that was, if an agreement between Standard and I. G. was reached, Standard should give the I. G. assurance that it would not fight against I. G. in Germany, that is, that the Standard would not "dump" in Germany. In London, Standard told the I. G. this would be difficult, since others might "dump" in Germany and that we would have to meet competition in order to hold our position.

Dr. VON KNIERIEM stated that the I. G. would like something definite as to our policy.

Mr. VON RIEDEMANN stated that we did not wish to shake the German market or follow an aggressive attitude against the I. G., but naturally Standard must protect itself.

Mr. TEAGLE stated that, if our plans go through (that is to say, Deterding comes in on our Standard-I. G. agreement, completion of the Export Association, etc.), much will have been done to prevent "dumping." Russia is the unknown factor, but they have only a limited supply.

Dr. BOSCH remarked that the best insurance the I. G. could have was an agreement on the part of Standard to keep the I. G. posted.

Mr. TEAGLE stated that Standard would be glad to do this.

Mr. VON RIEDEMANN added that we would give assurance that we would not have an aggressive policy against the I. G.

Dr. VON KNIERIEM stated that the I. G. have prepared a statement of the patent situation but that he had not brought with him all the applications. The I. G. would, of course, show the Standard all of the I. G. and I. B. C. patents and applications. He has listed approximately 400 to 500 German patent applications, and possibly five to six times as many foreign applications. He further stated that it would be desirable for Mr. Howard to have a patent assistant with him in Germany who could speak German fluently, as it was difficult for Dr. Abel to follow English. He stated that Dr. Abel had such an assistant, but, owing to the fact that Dr. Abel would probably leave the I. G., it would be impossible to loan Dr. Abel's assistant to Mr. Howard. He further stated that the scope of the agreement, a difficult point, must be settled first before the scope of the patents could be given. Also, the important contracts of the I. B. C. with the French and British groups would have to be gone over. In this connection he pointed out that the I. B. C. was owned as follows:

30% I. G.  
20% Shell.  
50% Makot.

and that Makot was owned to the extent of 40% by I. G. and 40% by Dr. Bergius, and Dr. Bergius has an agreement to work in harmony with the I. G. However, I. G. must first ask Shell before selling their 30%, as this was in accordance with an agreement between the various shareholders of the I. B. C.

Dr. VON KNIERIEM further pointed out that it might be a little difficult to decide what was the best way to transfer to the Standard their I. B. C. interest but, if necessary, I. G. could act as trustee or agent for Standard.

Dr. VON KNIERIEM pointed out that there are two classes of patents:

1. Those which apply exclusively to production of oil, which would go to Standard direct; and
2. General patents, such as those concerning the production of hydrogen, the design of hydrogenating apparatus, etc.

With respect to the second class, the I. G. would give Standard exclusive license for the scope of the agreement. He also remarked that another point to be discussed was as to who would push the patent applications.

Dr. BOSCH stated that he believed there were no further points of discussion.

Mr. TEAGLE inquired as to which option of payment was most suitable to the I. G.

Dr. SCHMITZ stated that the three options should be held open until the I. G. had an opportunity to further study the tax situation.

Dr. VON KNIERIEM pointed out that the terms and the amount of money paid should not be incorporated in the patent agreement itself. He also had some questions for our tax expert, and Mr. Howard was to arrange for Dr. von Knieriem to talk with Mr. Frey.

Mr. VON RIEDEMANN reiterated the proposed agreement with reference to the German situation, namely:

1. D. A. P. G. to take over excess I. G. gasoline over and above that which Gasoline A. G. can sell.
2. D. A. P. G. to handle this gasoline on a commission basis.
3. This agreement to carry a three-year cancellation clause.
4. At the end of each year D. A. P. G. will divide profits with I. G. on the basis of gallonage.

He further stated to Dr. Schmitz that D. A. P. G. would, of course, take 50% of Gasoline A. G.'s excess, and Rhenania the other 50%.

Mr. VON KNIERIEM stated that he was willing to put the above agreement into effect with the I. G. at the time we conclude the main coal and oil hydro-generation agreement.

Arrangements were made for Mr. Howard to meet with Dr. von Knieriem on Friday morning, March 22nd.

An agreement was reached that neither party would give any publicity for the present to our negotiations.

RTH: RVE.

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EXHIBIT No. 374

CHEMNYCO INC.,

521 Fifth Avenue, New York, June 20, 1932.

Dr. R. T. HASLAM,

*Standard Oil Development Company,  
26 Broadway, New York City.*

DEAR DR. HASLAM: In connection with the "Buna-Agreement" between Jasco and The B. F. Goodrich Company I received today the following cable:

"Proposed buna agreement not acceptable as regards paragraph eight. Further investigation pending. Write you earliest date.

I shall be pleased to advise you as matters develop.

Meanwhile I am,

Sincerely yours,

K. HOCHSCHWENDER.

Dr. Ho: G.

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EXHIBIT No. 375

THE B. F. GOODRICH COMPANY,

Akron, Ohio, June 25, 1932.

Dr. R. T. HASLAM,

*Vice President, Jasco, Incorporated,  
26 Broadway, New York, N. Y.*

DEAR DR. HASLAM: I duly received your letter of June 2nd and accompanying draft of a proposed letter agreement. However, with the enactment of the manufacturers excise tax on tires and tubes, it became necessary for me, and other officials of the company, to drop everything else until the complications arising out of this legislation had been cleared away.

Yesterday we carefully reviewed the "Buna" project, and I am sure that you will appreciate my writing you very frankly relative to the views of our people in this matter.

We looked with favor upon the arrangement discussed at the March 24th conference in New York re the cooperative evaluation of Buna, at which time both Mr. Sebade and myself understood that you were willing for Goodrich to have unrestricted rights to use "Buna" in all its plants and that your company and ours would share in the returns from patents developed by Goodrich in this cooperative study of "Buna"

The visit of Messrs. Sebade and Avery to New York was for the purpose of putting into suitable language what we conceived to be the thought of the previous conference. Mr. Avery's memo of this conference indicated to me for the first time either that I had misunderstood completely the purport of the discussion of the March conference or that views as to the matter then discussed had changed in the meanwhile.

Our people feel that it would be unfair to you to go forward with this arrangement unless we did so wholeheartedly and with the zest that invariably accompanies a development that can be eventually translated into commercial operations and operating profits. Certain it is that little enthusiasm will be aroused in a development where the question of terms on which it can be placed in commercial production is left to future negotiations, where there is a possibility that these terms may be so onerous as to preclude its employment, or where there is even a remote chance that the result of our development will be passed on to another to the exclusion of ourselves. These are very vital factors in any worth-while development program which requires not only the earnest efforts of the laboratory

but also the full cooperation of other departments, particularly the production departments, which always look critically at the profit end of the transaction.

We feel very strongly that any deal to be satisfactory to Goodrich, or to produce results satisfactory to your company, need embody—

(1) an unrestricted, nonexclusive, royalty-free license to employ in all Goodrich plants "Buna" purchased from you or I. G., or from other sales agents of your company or I. G., at least in the manufacture of our present major lines including tire casings and tubes, hose, belting, packings and gaskets, soles and heels, footwear, lined and/or covered tanks and pipes and accessories thereto and covered rolls, as well as the right to use and sell these products throughout the world;

(2) an actual participation in the reasonable royalties for the use of our patents;

(3) the ability in Goodrich to return to "status quo" in case that "Buna" is not produced on a commercial scale in this country by your company or another acquiring benefits under the arrangement between our companies; and

(4) a clear definition of "Buna."

We have not attempted to redraft the letter agreement or to point out in the draft last submitted the minor changes which we would desire. These matters should, I believe, be worked out in a further conference of our attorneys, in the event that our respective companies are able to agree on the above fundamentals.

Alternatively, we should be glad to take some of the material, evaluate it in our laboratory to such extent as we may desire and report to you the results of our evaluation entirely without commitment either on your part or on ours. This may be the preferable way to handle this matter.

I can assure you of our earnest desire to cooperate with you in this matter and cannot but feel, as I am sure you must, that it would be a mistake to go forward with any arrangement that would not bring forth a maximum effort to solve the many problems incident to the commercialization of this material.

I shall appreciate your full and frank comments at your early convenience.

Very truly yours,

S. B. ROBERTSON.

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EXHIBIT No. 376

OCTOBER 23, 1936.

Mr. F. A. HOWARD,  
*Building.*

DEAR Mr. HOWARD: Dr. Sebrell, following a discussion which he had with Dr. Hochschwender, dropped in to see me in regard to the possibility of the I. G. and ourselves cooperating with Goodyear on synthetic rubber.

Following our refusal to deal with Goodyear on synthetic rubber several years ago Goodyear went to work rather vigorously on its own behalf in this field and recently has succeeded in making some very interesting looking products, one of which is a butadiene product and the other of which smells like a rosin product.

Dr. Sebrell is planning to go to Germany in the next week or two where he plans to contact with I. G. on this matter and asked whether we had any objection. I think it would be worth while for you and Dr. Hochschwender to see Dr. Sebrell prior to his departure for Germany and if you agree I will be glad to try to arrange such a meeting.

Very truly yours,

R. P. RUSSELL.

RPR: BK.

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EXHIBIT No. 377

FILE MEMORANDUM

JULY 23RD, 1937.

The I. G. manufactures a synthetic rubber which is marketed or to be marketed under the trade name "Buna". The Atlas Supply Company has been interested in obtaining this rubber for their product and the U. S. Rubber Company would, of course, be pleased to use it in manufacturing products for Atlas.

So far as I know foreign rights to the product outside of Germany and full information regarding the manufacture, use, etc., of the product have not been released to anyone by I. G. probably because the Hitler government does not look with favor upon turning the invention over to foreign countries, and also because the I. G. may fear that if any other concern starts working with their product, they may develop methods of processing, milling, improvements, etc., that might cramp I. G. in the promotion of its own invention. It is highly desirable from a Jersey standpoint that if any rights are to be released in the U. S., it should be done through Jersey so that Atlas may benefit and this should be to the interest of I. G. because Jersey's connection with U. S. Rubber could be used to assure adequate promotion.

It is rumored in the rubber trade that the R. T. Vanderbilt Company has been given samples of the material by I. G. which are not available to others, and if this means that I. G. is considering having their invention handled by Vanderbilt rather than through Jersey interests, it may be well to approach I. G. and explain our viewpoint.

M. B. Hopkins

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#### EXHIBIT No. 378

[Copy]

#### EXTRACT FROM EXECUTIVE COMMITTEE MEMORANDA

Date: April 4, 1938.

Present: WSF, RWG, FIIB, Jr., DLH, TCMcC at 10:30 A. M. meeting.

#### III. GERMANY

*Synthetic rubber.*—With reference to Committee memorandum of October 1, 1937, Mr. Howard brought the Committee up to date on the progress made in the synthetic field in Germany since his last report. One commercial plant has been finished, is now producing 300 tons per month of synthetic rubber and will produce at the rate of 2,000 tons per month by the end of this year; a second plant will be finished early in 1940, and a third early in 1941. When completed, these plants will give Germany a synthetic rubber production capacity of 75,000 tons per annum as compared with the country's present total requirements of 60,000 tons.

Information which we had expected to receive about the technical aspects of this development, in line with the understanding Mr. Howard reported on October 1, 1937 (pages 6 and 7), has not been forthcoming as a result of the German Government's refusal, because of military expediency, to permit I. G. to reveal such information to any one outside Germany. Mr. Howard did develop, however, that present commercial operation indicates a cost, before fabrication, of about 40¢ per pound for the synthetic material. This would be greatly reduced by the process to be used on gas raw material in the United States. At the present time milling costs of the material appear to be about twice as much as milling costs on natural rubber, but it is expected that in time those costs can be reduced so low that the cost of the finished product may be made reasonably competitive in the tire field. The process is already profitable in the specialty field. As an illustration, the DuPont's oil resistant rubber, Neoprene, sells for 75¢ per pound.

The Jasco understanding is such that, with respect to a product like this, developed by I. G. interests in the nonpetroleum field, a 25% overriding royalty is first paid to I. G. before the pro rata sharing of returns. Also, I. G. has the deciding voice on policy questions with reference to their own inventions, as we do in the case of our inventions. Mr. Howard deplored the fact that the German Government's restrictions on I. G.'s freedom of action had prevented our making material progress in the American field, particularly as there is some indication that the American rubber companies are making independent progress along these lines. As an illustration, he understands Goodyear has already made tentative arrangements with Dow Chemical Company to go ahead in the synthetic field if progress is not made with us. He said he is to have a conference with Goodyear and I. G. representatives here on Wednesday.

As to the method of approaching the rubber industry, Mr. Howard felt less inclined to follow the patent license method than a program of interesting principal U. S. rubber companies with us and I. G. in a manufacturing plant conveniently located near a pipe line, as at Baytown, where low-cost butane would

be readily available. Mr. Gallagher questioned whether the selfish interests of the rubber companies might not motivate them in holding back synthetic development if such an arrangement gave them the opportunity to do so. Mr. Howard pointed out that the U. S. rubber companies do not control their raw material, and probably would be as deeply interested in a commercial synthetic product as we and I. G. are. Committee felt this should be developed further. (See F. A. Howard & F. H. Bedford letters in A. C. M. files.)

*Synthetic fatty acid.*—The third plant for the production of synthetic fatty acid is now financed in Germany and total domestic requirements are taken care of.

In connection with the utilization of this process in the United States, through Jasco, the deal made with Proctor & Gamble provides for using about 15 tons per day, which represents one-half the capacity of a small plant, to be priced in line with the going coconut oil market. The present difficulty is that our people have named a price of 2¢ per pound on the wax used, which hardly permits the plant to do more than break even on operations. A wax price of 1½¢ per pound is necessary in order to show a good write-off on the investment. This aspect of the matter is still under discussion.

Messrs. E. J. Sadler, F. W. Abrams, R. P. Russell, E. V. Murphree, G. W. Gordon, S. P. Coleman, and H. L. Shoemaker joined the meeting.

*Houdry process.*—Committee discussed the memorandum analyzing the extent of likely Jersey interest in the Houdry process which was prepared by the manufacturers and representatives of the Coordination Department.

This analysis indicated that, while there appeared to be no long-range advantage to Jersey in the use of this process, there might be some justification for covering ourselves with a short-term, say two-year, license for the use of it on a specified amount of refinery capacity if it only cost us our estimated savings to do so. At that, we ought to receive definite guarantees that the prices would give the results promised, otherwise our estimated savings might not be achieved. The best estimates indicate that a saving of about \$10,000,000 might be made in a two-year period which, assuming a payment of \$100 per barrel of charge, would mean covering between 75,000 barrels per day and 100,000 barrels per day of productive capacity with the license.

Mr. Howard pointed out that evolution in patent practice convinced him the premise of determining license cost by estimating potential savings through its use was unsound, and that a proper valuation of a license should depend upon the preferential value of the process under consideration over other competitive processes. By such standards he did not believe a fair value could be considered more than \$3,000,000.

Apropos of our own patent position, Mr. Russell pointed out that our patent people feel (although outside patent opinion has not yet been received) that our plant design for catalytic cracking is based on practice which antedates the Houdry patents, most of which past practice is covered by our own patents, and it is unlikely Houdry could sustain a case against us for infringement.

It appears Standard Oil Development Company will have their plant designs for a 20,000-barrel-per-day plant ready for consideration about July 1.

After discussion, Mr. Farish suggested that Messrs. F. A. Howard and F. W. Abrams prepare a draft of reply to the J. A. Brown letter (see Committee memorandum of March 23, 1938). It was felt that the reply should involve the following thought: we could scarcely pay anything for the Houdry patent if in the deal we were to receive no participation in cross licensing; consequently, are the Houdry people inclined to give consideration to our having a suitable pro rata participation?

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EXHIBIT No. 379

APRIL 20, 1938.

MR. F. H. BEDFORD, JR.,  
30 Rockefeller Plaza.

DEAR FRED: I am just in receipt of a letter from Dr. ter Meer, the essential part of which is as follows:

"In accordance with our arrangements in Berlin I have meanwhile taken up negotiations with the competent authorities in order to obtain the necessary freedom of action in U. S. A. with regard to rubberlike products. As anticipated those negotiations have proved to be rather difficult and the respective

discussions are expected to take several months before the desired result is obtained. I will not fail to inform you about the result in due course." To this I have sent the attached reply.

Dr. Hochschwender fully agrees with the ideas I have expressed and I shall continue, through him, to press for permission to have some informal talks with some of the other rubber people at the earliest moment. Until we have this permission, however, there is absolutely nothing we can do, and we must be especially careful not to make any move whatever, even on a purely informal, personal or friendly basis, without the consent of our friends. We know some of the difficulties they have, both from business complications and interrelations with the rubber and chemical trades in the United States, and from a national standpoint in Germany, but we do not know the whole situation—and since under the agreement they have full control over the exploitation of this process, the only thing we can do is to continue to press for authority to act, but in the meantime loyally preserve the restrictions they have put on us.

Since it is not possible for us at the moment to take any definite action, I have put aside, in favor of pressing business, the attempt to work out a definite proposal at this time.

Very truly yours,

FRANK A. HOWARD.

FAH: MF.

encl.

cc: Dr. K. Hochschwender.

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EXHIBIT No. 380

[Copy]

STANDARD OIL DEVELOPMENT COMPANY,

26 Broadway, N. Y., April 14, 1938.

Mr. F. H. BEDFORD, JR.,

30 Rockefeller Plaza.

DEAR FRED: I acknowledge your letter of April 8th.

While of course I cannot at the moment reach any final conclusion I think your suggestion of having Atlas a member of the original group participating in the Buna development in the United States is a very interesting and proper one. I would like to point out the following elements which would be involved in a decision on this matter for your consideration:

1. Buna for tires is not yet competitive. Whether it will be so in one year or five years is not certain. Whether certain premium properties which it has will be sufficient to overcome the price disadvantage is also not certain. From this it follows that any Buna marketed in the tire field for some time after the beginning of the development may have to be taken at a loss, as a means of keeping the enterprise going and working toward lower costs and better quality: and in the meantime putting an upper limit on the fluctuating price of natural rubber.

2. Outside of the tire field a somewhat different quality of Buna can certainly be produced and sold at the present time at a considerable profit. Buna would be in competition with certain other products, especially Duprene and Thiokol, and possibly with other synthetic rubber substitutes in this other field. The proposed stockholders in the mutual organization other than Atlas would be in a position to take the output of Buna in these other profitable and competitive fields. Atlas would not be in this position.

3. While Atlas is the fifth largest tire marketer in the United States, it would seem to be a little difficult to substantiate the position that it was entitled to a share in a mutual enterprise of this kind, based on its sales under its brand and without regard to its investment.

4. In view of all the foregoing, would Atlas wish, even though the other companies were agreeable, to put up a one-fifth share of the capital required for this development?

Concerning your suggestion that we should not await the action of the Goodyear company, but should be working forward on this matter ourselves, I entirely agree. The thing that is really holding us up, however, is not the lack of a plan either from Goodyear or ourselves, but the inability of our partners to obtain permission of their government to proceed with the development in



the United States. Until they obtain this permission it is not possible for us to make any commitment at all. Our primary objective in our talk with the Goodyear and Dow people was to convince them of our good faith and our willingness to cooperate with them, in order to avoid having them proceed prematurely with an independent development which would make it impossible to bring them into any general plan later. For the reasons stated above it was not possible for us to propose any specific plan to them in answer to their definite request for an exclusive license. Under these conditions, the best road seemed to be to explain the problem to them, tell them the way our thoughts were going, and ask them to consider the matter further and make suggestions in line with a solution of the problem according to the general plan which had been developed at our meeting.

I quite agree, however, that we should not sit still ourselves, but move as fast as we can in all directions—and one of these directions is to try to develop our own ideas of a mutual plan. I should very much appreciate your help in this—and present the following complications which exist in connection with this matter to assist your thinking:

1. The principal raw material for this manufacture would consist of petroleum gases, of which we believe our best supply is located at Baytown. Other oil companies will also have supplies of these raw materials. We must, in the first instance, decide whether we wish to adopt a plan which makes no provision for participation of any kind by any other oil company.

Before deciding this point we should consider the second factor in the problem:

2. These petroleum gases are not directly suitable for the production of rubber, but must first be chemically converted into different gases. Should this operation be considered a part of the Buna manufacture or should it be considered a part of the raw material supply operation? In the former case it would be mutualized, and in the latter, it would remain a Jasco project—or a Humble Oil project licensed by Jasco.

3. There is also involved the manufacture of certain important blending agents from petroleum gases, these agents having a separate commercial status, so that they could be bought in a competitive market and also sold for uses quite independent of Buna manufacture. Nevertheless the market for these products outside of Buna manufacture would be very much smaller relatively than the Buna market, if the latter developed on the expected scale.

4. Our partners have had certain discussions with the du Pont company concerning the licensing of "Duprene" in Germany, and it may be that as a result of this situation some arrangement will have to be made with the du Pont company.

5. The Dow Company apparently has a contract for joint development in this field with Goodyear. Can any place be found in the future for the Dow Company which would make it possible for Goodyear to join the group?

6. Jasco has an agreement with General, entered into some years ago, in an effort to secure a trial of the product in the United States. This General affiliation must be disposed of in some way, perhaps by inviting General to join the group. This opens the door for consideration of the desirability or necessity of including, in addition to the "big four," the second-line tire companies.

I have only the most general thoughts on a plan for meeting the above difficulties up to the present time. These thoughts are:

That the temper of the times as regards big business and monopolies is such that the plan should be as broad and as free from any taint of building up or perpetuating a monopoly as possible. This would mean that we should endeavor to include all tire companies of any consequence without regard to size. Also, that while necessarily proceeding with a definite project (probably at Baytown) at the outset, there should be nothing in the nature of the plan to prohibit other oil companies from becoming competitive suppliers of petroleum gas, if the industry developed beyond the limits of the necessary initial commitments.

I do not as yet see how the Dow and du Pont complications can be handled—if it is necessary to handle them. I would be inclined to put the manufacture of the principal raw material from the petroleum gas in the hands of the mutual group, but to exclude the manufacture of the other blending materials, and it is possible that this latter field offers an opportunity for some understanding with the du Pont and Dow companies, if our partners would be agreeable.

As regards royalty arrangements and capitalization, my present thought is that we should try to avoid putting any large amount of our own capital into the mutual project. Visualizing its expansion in two stages, however (first, as a rather high profit specialty business, and second as a low profit or even sometimes basis business), the best plan might be for us to supply a substantial part

of the capital for the first stage, with the understanding that we would not maintain our position as suppliers of capital, when and if the business greatly expanded as supplier of basic raw material. In this connection we must keep in mind the difficulties our partners have in finding any capital for investment outside of Germany.

In addition to our participation through investment in this project, which might be of an independent basis for ourselves and our partners, Jasco is of course entitled to a royalty which could probably best take the form of free shares.

Yours very truly,

(S) FRANK HOWARD.

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EXHIBIT No. 381

APRIL 20, 1938.

Dr. FR. TER MEER,  
Frankfurt a. M. 20,  
Grunburgplatz, Germany.

DEAR DR. TER MEER: I acknowledge with thanks your letter of April 9th. Dr. Hochschwender and myself will do our very best to keep the situation here under control so that we will have an opportunity of making the most favorable arrangements and of securing for your process the recognition which we all desire for it.

I wish you early success in your negotiations, and hope especially that, without waiting for final conclusions on all of the questions involved, you may be able to grant us the authority to proceed in a preliminary way with the rather lengthy discussions here which must be had with the various interested rubber companies preparatory to organizing them into a cooperative group.

My present tentative plans are to be in Germany again in late July, remain in Europe for a holiday during August, and return to the United States about the middle of September. If I am able to follow this program, perhaps it might fit into your plans and negotiations for me, to explain the situation to your people in July and present them with our definite suggestions; and then the matter might be sufficiently advanced before the middle of September to permit me to return with an agreed-upon program and authorization to take the preliminary steps with Dr. Hochschwender here in putting the program into effect.

My view is that we cannot safely delay the definite steps looking toward the organization of our business in the United States, with the cooperation of the people here who would be the strongest allies, beyond next Fall—and even to obtain this much delay may not be too easy.

With best regards, I remain

Very truly yours,

FRANK A. HOWARD.

FAH: MF.

cc: Messrs. F. H. Bedford, Jr.  
K. Hochschwender.

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EXHIBIT No. 382

STANDARD OIL COMPANY,  
30 Rockefeller Plaza, New York, February 5, 1940.

Buna Synthetic Rubber.  
Messrs. W. S. FARISH,  
ORVILLE HARDEN,  
R. W. GALLAGHER,  
W. E. PRATT,  
F. H. BEDFORD, JR.,  
D. L. HARPER,  
T. C. MCCOBB.

DEAR SIR: Dr. M. B. Hopkins has prepared the attached memorandum in order to provide an up-to-date outline of the status of negotiations affecting Buna synthetic rubber.

Very truly yours,

A. C. MINTON, *Secretary*.

Enclosure.

FEBRUARY 1st, 1940.

## BUNA RUBBER

## Memorandum—Confidential.

The Standard Oil Development Company now owns all the stock of Jasco, Inc. Jasco owns all I. G. patent rights to Buna synthetic rubber processes in the United States, the British Empire, and the French Empire.

There are two important types of Buna synthetic rubbers:

1. *Buna-N, same as Perbunan.*—This may be regarded as a specialty product. For about eighteen months before the war started, small commercial quantities were being imported here from Germany and sold at a price of 90-95¢ per pound. The imports were used largely in commercial trials to test its utility. It was quite successful and its sale would probably have amounted to several tons per day in 1940 if the supply had not been cut off. The rubber industry generally found it superior to du Pont's synthetic rubber—Neoprene. Its high value, in comparison with natural rubber, is due to superior properties, such as resistance to heat, to abrasion, to aging and particularly to swelling in gasoline and oil. It goes into gasoline hose, automobile radiator connections, other automobile parts, printers' rollers, and a variety of other articles where oil-resistance is important.

The raw materials for making Buna-N are butadiene (about 75%) and acrylonitrile (about 25%). There are a number of ways of making both of these but in the United States petroleum gas is the best starting raw material.

2. *Buna-S.*—This is the synthetic rubber which the I. G. is making on a large scale in Germany. The latest information from there is that a plant is in operation which produces 25,000 tons per year. A second plant was expected to be in operation early in 1940 to produce another 25,000 tons and a third plant would probably be completed in about a year which would produce still another 25,000 tons. The normal consumption of rubber in Germany is 75,000 to 100,000 tons per year as compared with a consumption of about 600,000 tons per year in the United States.

Buna-S is used in Germany to make tires for automotive equipment. The Germans claim that tires made with it have 30% better life than tires made from natural rubber. Their claims are in part substantiated by tests made by five American rubber companies who ran road tests on Buna-S tires which they made from samples of Buna-S furnished them by the I. G. in 1939. They reported an average of about 10% better wear for these Buna-S tires.

The raw materials for making Buna-S are butadiene (about 75%) and styrene (about 25%). At the present time styrene is derived from coal tar.

When Jersey came into control of the Buna development in the United States last fall, the first thought was to invite the leading rubber companies to participate with Jersey in a manufacturing company which would supply both Perbunan and Buna-S to the participants and also to the trade generally. It was thought that a concerted effort in a single plant might realize economies not attainable in separate plants operated independently. Production of the higher cost specialty, Perbunan, in this plant might be followed by production of Buna-S.

The immediate production of Buna-S for use in tires will not be commercially practical in the United States until there has been considerable experience with the processes for making the raw materials and the products. On the other hand, the Army and Navy Munitions Board is quite concerned over the possibility that natural rubber supplies to the United States may be cut off in case the European conflict spreads to the Pacific. Centralized facilities seemed most likely to make possible a quick production of Buna-S to serve the national defense in case natural rubber supplies are cut off.

Advice as to the best method of carrying forward the Buna development in the United States was sought in conversations with Goodrich, Goodyear, Firestone, U. S. Rubber, and General Tire, separately. It quickly developed that the rubber companies each has its own different idea as to what is best. Time required to bring a group of these companies together was therefore not available. It is of paramount importance that Perbunan be manufactured in the United States as quickly as possible. Present Perbunan users have only small stocks of imported material. It was found that some of the rubber companies are prepared to get into production of Perbunan upon short notice. Both the Goodrich and Goodyear companies have been producing the product on a pilot plant scale for some time. It was decided to defer any consideration of a plan

for a single plant and to offer to license the five largest rubber companies to produce their own requirements and to produce additional quantities for us to sell to the trade generally. Offers to license have been made to each of the above-named companies.

The most important terms of the licensing arrangement are:

1. The rubber company takes a license to produce for consumption in its own products but not for sale otherwise. It gives us an option to buy one-fourth of its plant capacity for distribution to the trade generally.

2. A high royalty rate (7.5¢/lb.) is fixed so as to make the operation practical for the rubber company only so long as the product is used as a relatively high-cost specialty.

3. The rubber company agrees to license back to us its improvements.

The effect of these terms is to limit rather drastically what the rubber companies may do under their license and to leave Jersey free to itself manufacture and sell, or participate along with rubber companies in a manufacturing organization, or confine its activities to licensing and supplying raw materials. Therefore, the licenses offered may be considered as a stop-gap arrangement to permit the rubber companies to get into quick production of Perbunan for specialty use if they so desire. Beyond this, there has been no decision as to how the development will be advanced.

#### DISCUSSIONS WITH RUBBER COMPANIES

*B. F. Goodrich Company.*—There have been a series of meetings with Goodrich to discuss drafts of licenses. These are continuing, but the Goodrich people have objected seriously to some of the terms offered. They do not want a temporary arrangement. Their attitude may be used to illustrate the kind of objections offered to the licensing plan. Their position is—

1. Goodrich has used more Perbunan than any other single company and as a consequence they know more about its application and are in a preferred position with regard to its use.

2. Goodrich has been experimenting for many years with synthetic rubbers. They are manufacturing a rubber substitute called Koroseal which is made by a polymerization process similar to the process used in manufacturing Buna rubbers.

3. Goodrich can make two other synthetic rubbers which do not come under I. G. patents. It is admitted that these will cost more than Perbunan. Except that one is oil-soluble and the other not, their properties have not been disclosed to us.

4. Goodrich, by laboratory and pilot plant operations extending over several years, has learned how to make Buna rubbers of a quality better than the German product.

5. Goodrich has built up a patent position in the synthetic rubber field. It admits that the I. G. patents dominate what it wishes to do and they wish only a straight license under a few of the I. G. patents and do not wish to cross license us.

6. Goodrich estimates that the smallest plant which can produce economically will have a capacity of three tons per day. They require only one-fourth of this production immediately for their own consumption. They wish us to either take the remaining three-fourths or permit them to sell it to the trade generally.

7. Goodrich is afraid that if we limit their production to their own requirements they may find that Jersey or some company with a large plant which can turn out Buna at lower cost than would be possible in their small plant with the result that their small plant investment may be lost.

8. The royalty rate of 7.5¢ per pound is considered entirely too high.

*Goodyear Tire & Rubber Company.*—Goodyear has been working in the synthetic rubber field for several years and claims to know more about making the Buna synthetic rubbers than anyone in the United States. There are indications that they are actually making about 100 pounds per day. There have been several meetings with them to discuss a draft of licensing agreement. Their objections are much the same as those of Goodrich. Another meeting with their representative is scheduled for February 6th.

*Firestone Tire & Rubber Company.*—The Firestone Company has experimented with the Buna rubbers but until recently they had confined their efforts to experiments with the German products. They are considering our proposed

license and have made a counter-proposal in the form of a draft of agreement which is more satisfactory to them. Negotiations are continuing.

*U. S. Rubber Company.*—The U. S. Rubber Company has indicated that they consider the Buna synthetic rubbers very important. They are now making a study to determine if it would be to their interest to take a license from us to manufacture for their own requirements or to arrange to purchase their requirements.

*General Tire & Rubber Company.*—General is a smaller company than the above companies. They have used some of the imported Perbunan and are much interested in securing additional supplies. They state that if Perbunan becomes available in the United States, they expect to use increasing quantities. However, they believe that for some time at least their consumption will not be large enough to warrant manufacturing for themselves.

*Chemical Companies.*—Several chemical companies have applied for licenses to manufacture Perbunan.

Röhm & Haas of Philadelphia are carrying out processes somewhat similar to the Buna rubber manufacturing process. They are also manufacturing acrylonitrile, one of the raw materials used in making Perbunan. They want to make Perbunan but have not been encouraged to believe that a license will be granted.

Du Pont.—There have been several discussions about Perbunan with du Pont. At first they were quite willing to leave the matter to us and the rubber companies. When, however, they learned from the rubber companies that Buna synthetic rubbers were in many respects superior to Neoprene, they came back and suggested that we work out an arrangement with them which would in effect have turned the development over to them. No basis for agreement was found.

Dow Chemical Company has been working for several years in close cooperation with the Goodyear Company on Buna rubbers. They supplied Goodyear fairly large quantities of butadiene for experimental work and are obligated to take care of Goodyear's butadiene requirements before selling to others. They have asked for a license under the I. G. patents.

*Development Company technical position with respect to Buna production.*—When Jasco took over the Buna development for the United States, the I. G. was not permitted by its government to give any technical information regarding the process except that contained in the patent disclosures. The Esso Research Laboratories, therefore, started experimental work immediately in connection with the manufacture of the raw materials from petroleum gas and also to make the Buna rubbers. Rapid progress has been made. Preliminary cost estimates covering a plant to produce butadiene, the principal raw material, are expected about February 15th. The Buna rubbers have been made in the laboratory. It now appears probable that a small commercial plant could be put into operation before the end of the year if this is found desirable.

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#### EXHIBIT No. 383

##### MR. CURRIE'S COMMENTS ON PROPOSED AGREEMENT

The agreement as it is now drafted will lead to the centering of all patent rights of licensees in the hands of licensor, with no outflow of those rights except to customers of licensor (and on two minor phases of patents, to licensor's licensees).

All manufacturing patent rights of licensees will help to build up licensor's dominating position, but as licensee will get the benefit of any other licensee's manufacturing patent rights. In other words, this is not a cross-licensing agreement, but one in which patents are piled on patents in the hands of one centralizing company.

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#### EXHIBIT No. 384

JANUARY 2, 1940.

##### MEMORANDUM—SYNTHETIC RUBBER

The concensus has been that we might wish to make substantial investments in the synthetic rubber business ourselves, both as a means for better controlling the outlet for the raw materials and integrating the manufacturing process with our own oil processes, and because this appears to be a field in which we might make a very profitable investment related to our business.

To meet the pressure for Perbunan in the United States, we agreed to offer licenses to the four largest rubber companies under the I. G. synthetic-rubber processes, but only under conditions which would still leave open to us the possibility of entering the business actively in some way ourselves. The main limitations were a rather high royalty rate, seven and one-half cents per pound, the limitation on production to the licensee's own requirements, and rather far-reaching cross-licensing provisions.

Of the four companies to whom these proposals have been made, only Goodrich and Goodyear have been active in following them up. Discussions with these companies indicate that to the extent we meet their wishes for the liberalization of the licensing contracts we shall cut away the foundations upon which our own plans would have to rest. While we have told them that in general it is our hope to work out some joint project ultimately, we have assumed no commitment to do so and therefore at the present time they are looking at the license contract we are offering to them as though it were the only thing they would ever receive from us. One cannot blame them for being critical of many of its provisions under these conditions.

We are proceeding as rapidly as possible with our technical and patent preparations for this new industry and expect to have by the middle of February definite plans for production of butadiene at Baton Rouge. We are at the same time trying to get the butyl rubber pilot plant far enough forward to make demonstrations of this product and process on a substantial scale. To complete the picture it seems that we should have the clearest possible idea of what we wish to accomplish at about the same time. To arrive at a conclusion on this we should consider very carefully the relative merits and feasibility of proceeding with the rubber development entirely alone, or taking on partners. In this connection the first possibility and the one we have most discussed is an industry-owned synthetic-rubber company in which we would hold a substantial interest.

The outline of a plan for such a company might be as follows:

#### OUTLINE OF INDUSTRY COMPANY

1. We would organize a corporation to which we would assign all of the I. G. Jersey patent rights in the synthetic rubber field in return for all of its capital stock.

2. 49% of the stock of this corporation would then be offered to all American rubber companies in proportion to their consumption of rubber for the last accounting period. For example, one share per ton per annum, which would mean perhaps 700,000 shares. Offering price on this basis might be a nominal figure of \$1.00 per share.

3. Each shareholder takes a license from the company, giving the right to manufacture for its own requirements only at a royalty rate of seven and one-half cents per pound, and as a condition of the license to cross license the company in his improvements in the manufacture of synthetic rubber of the defined type and agree not to sue customers of the company for compounding and use of the synthetic rubber produced. It is not expected that the licensees would operate under their licenses under normal conditions, but their right to do so is an essential element of the plan.

4. Additional capital for any requirements of the company to be raised by a sale of fixed interest or limited return securities (debentures or preferred stock at the option of the management) which might be offered either to outside investors or to the common stockholders.

5. In the event any rubber company stockholder does not take his pro rata proportion of any fixed interest securities offered at any time to all shareholders, he shall offer to sell at \$1.00 per share one-half of his excess holdings of common stock to Jersey and one-half to the other shareholders, and such shareholders as accept shall divide the entire one-half between them. Excess holdings of common stock are holdings thereof in excess of the shareholders' holdings of other securities offered to the shareholders.

6. In the event Jersey does not take its ratable share of any securities offered to the shareholders, Jersey shall offer its excess common stock at \$1.00 per share ratably to the other shareholders as above provided.

7. Newcomers in the rubber industry could be offered the same position as original stockholders under fair conditions, and companies which had not accepted participation originally offered or which lost position by failure to accept securities offered to shareholders might later increase their participation up to their normal percentage on fair terms. In both cases consideration would have to be given to the risks taken and the returns made by the other shareholders.

8. Shareholdings of the original parties might be readjusted on the basis of cost at fixed intervals.

The general purpose and effect of this plan would be to create a synthetic-rubber business in which the supplier of the raw material and the owner of the original processes, that is Jersey, would have a one-half beneficial interest and control of the company, and the potential consumers of the product would have the other one-half interest. Each potential consumer would have a right to produce for his own requirements, but only at a rather high royalty rate. This royalty rate plus the economies of the common plan would, however, be a maximum limit upon the total profit of the common company. The consumers as a group would receive half of this profit, but unless the participations were frequently readjusted to coincide with the actual relative consumption of the synthetic product no individual consumer could be certain that he would obtain exactly his proportion.

If an effort were made to divide the profits or some fraction of them exactly in proportion to purchases, the element of return upon the capital and compensation for the inventions would be subordinated. It would seem sounder to subordinate the profit-sharing element. Presumably there will always be competition, direct or indirect, and the price level, which determines the profits and return upon the investment, would be fixed by this competition, in the main at least. The fact that one-half of the total profits go to the consumers as a group is apparently sufficient concession to the profit-sharing principle.

In offering any such plan the condition would probably have to be attached that it should not become effective unless accepted by a certain specified proportion of the industry. If so few accepted the plan that it failed of its main purpose, then other arrangements would probably be preferable.

The plan should leave the possibility for Jersey to share its interest in the company with anyone whom it elected to take in as a partner, providing that person was not interested in any way in the rubber business.

Probably the most difficult part of the plan from our standpoint is that it leaves us with the necessity of quoting a price on butadiene and isobutylene, possibly against competition, for a long term. We have in effect compromised on this basic difficulty by retaining half of the profits of the rubber business for ourselves as a hedge against any miscalculation on the raw material contract. Our stock control of the business should permit us to make the price just as freely as though we owned the entire business, and the consumer interest is probably helpful in deciding upon a fair price. We should be paying one-half of the profits of the new business, minus whatever profit might come to us from the raw material contract itself, in return for one-half of the capital required in the fabricating end of the new business (but not the raw material supply portion of it), for a considerable improvement in the over-all patent position, and for some good advice in the management of the business and a very real degree of consumer support. Altogether the advantages of the arrangement appear to outweigh the disadvantages from our standpoint.

There may be serious question as to whether the rubber industry would accept such a plan because of its tendency to put us in too favorable a position.

It appears that if we consider the above plan to bet one that suits us, we should not let too much time elapse before presenting it. Experience shows that the position of a patentee in a new field usually looks stronger to the outside world originally than it does later. In other words, the favorable time for the patentee to make deals is as soon as the industry is convinced of the value of the invention and before it has an opportunity to visualize too well the possibilities of competing ventures.

In the present instance it is believed that the best time for the presentation of any such plan would be immediately following a disclosure to the rubber industry of the butyl rubber development. This development, coming on top of the acute existing demand for Perbunan and our control of that situation, should create a very favorable atmosphere for the discussion of the plan. Of course, one important element from the Jersey standpoint is the amount of capital that might be involved. Only the roughest possible ideas can be given at this time, which are about as follows:

The first commercial ventures in the synthetic rubber field would probably be a plant for the production of five to ten tons of Perbunan at Baton Rouge and a plant for the production of roughly the same amount of butyl rubber at Bayway. The investments for producing raw material for these two plants are difficult to get at because they are tied into other projects which we are interested in, such as the production of high octane gasoline and the production of ethylene, and the production or lack of production of aviation alkylate. At a guess one might say

roughly two million dollars of Jersey capital might be involved within a period of a year in the initial raw material supply. The capital for the fabrication of the synthetic rubber from the raw material might be another million dollars, of which seven hundred thousand dollars might have come from the rubber companies under the above plan, leaving a very small amount for Jersey to put up.

Taking a look ahead, the business might very well swallow Jersey capital up to the total extent of some figure in the order of twenty million dollars within a period of say five years.

The above plan would leave the door open to draw capital from outsiders, for example du Pont, by sharing our interest in the enterprise with them. Unless it appears that they can contribute to the enterprise something more important than capital, however, there would seem to be no good reason for putting them in. So far as the technical situation has yet developed, the key to the whole problem is the raw material supply. This is the point at which the large fraction of investment will have to be made to provide a broad low cost base for operations, and this is the place where the greatest economies in the integration of this type of petroleum production manufacture with other types of petroleum production manufacture for use in the oil industry itself and for other chemical purposes will have to be made.

Under these conditions it seems that the really practical alternatives are either to proceed entirely alone with this development or to take in as partners the potential customers of the product only.

FAH:JW.

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EXHIBIT No. 385

JANUARY 10TH, 1940.

Mr. T. G. GRAHAM,  
Vice President, The B. F. Goodrich Company,  
Akron, Ohio.

DEAR Mr. GRAHAM: Thank you for your note of January 5th advising that you will be away from January 11th to January 18th.

So far we have been unsuccessful in efforts to find a way to meet your views about the proposed licensing agreement. The principal difficulty results from our desire not to make any commitment which would prevent us from eventually carrying out our first thought outlined in my letter to you dated November 30th, 1939, to bring about a concerted effort in a single plant which might afford economies not attainable in separate plants operated independently. The draft of agreement which I left with you was intended to permit you to manufacture the synthetic rubber for specialty purposes and leave you free to participate in a common manufacturing company or not, as you may wish, when and if such a company can be organized.

Quite frankly, it was our intention that the license would not be a suitable one under which to operate if the licensee expected to go beyond producing a relatively high-cost specialty product. For instance, we agree that a royalty rate of 7.5¢ per pound is entirely too high for products falling within Class 5 of your Article IV and selling from 20¢ up to 40¢ per pound. Yet to the extent that we meet your wishes for the liberalization of the licensing contracts, we would have to cut away the foundations upon which our own plans would have to rest.

With this statement of the situation before you, I wonder if you can make any suggestions.

Very truly yours,

STANDARD OIL DEVELOPMENT COMPANY,  
M. B. HOPKINS.

MBH:GD.  
Blind CC—Mr. F. A. Howard.

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EXHIBIT No. 386

[Copy]

OCTOBER 22, 1941.

TO: I. G. FARBENINDUSTRIE, *Ludwigshafen on Rhine, Germany.*

PC seventeen. Jasco has filed suit against the B. F. Goodrich Company and Hycar Chemical Company, its affiliate, for infringement of the following United States patents eighteen six four naught seven eight, nineteen eleven six seven



two, nineteen three, five seven three three, nineteen three eight seven thirty, nineteen three eight seven three one, and one million nine seven three thousand. In connection with this suit please send us copies of the German patent applications exactly as they were filed in the German patent office on which those United States patents were based. The copies should be certified by a United States Consul. Assume you have the original United States patent grants, not necessary to forward these to us. Goodrich has proceeded with unlicensed commercial production of Buna type synthetic rubber, claiming product is its own independent development. It is important for us to know with dates which Goodrich representatives visited your plants, what they saw, and what information you gave them.

DRAWOHAf.

cc: EVK  
WEC.  
HGN.  
File.  
MF.

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EXHIBIT No. 387

THE GOODYEAR TIRE & RUBBER COMPANY,  
*Akron, Ohio, October 17, 1941.*

MR. FRANK A. HOWARD,  
*30 Rockefeller Plaza, New York, N. Y.*

DEAR MR. HOWARD: The formal notice of our alleged infringement of your Buna patents to which you referred in your recent letter has been received. Our attorneys will forward to your attorneys shortly our formal response thereto, stating our position from a legal standpoint.

I cannot agree that most of our objections to the form of agreement submitted by you have been cleared up. At least, there are several important objections remaining with which I think you are familiar, and these objections I feel are well founded.

Subsequent to our conversations which failed to realize a basis for agreement certain additional factors have been injected which must be considered in any further discussions, viz; our further development progress in the field of synthetic rubber, and the Federal investigation involving your general program and as to which just this week we have been subpoenaed to produce certain data. Particularly in view of the latter factor I seriously doubt the propriety of resuming discussions pending clarification of the whole synthetic rubber patent situation.

Yours very truly,

P. W. LITCHFIELD,  
*Chairman of the Board.*

P. W. Litchfield.  
b.  
Whipple.

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EXHIBIT No. 388

[Incoming message]

DETROIT, MICH., *Sept. 8.*

E. V. MURPHREE,  
*Standard Oil Development Co., 26 Broadway:*

Drove around town today on four butyl tires. Entirely satisfactory performance on wet and slippery asphalt. Original U. S. tire still running. Total mileage about three thousand. Wear still only about forty-five percent as good as natural. Experimenting with new tread compounding believed to represent at least ten percent improvement in wearing quality and probably more. U. S. feels satisfied that butyl contrary to any other synthetic on further study and education of personnel could be handled on regular tire factory equipment on essentially the same volume basis as natural rubber. They are quite positive that this conclusion is justified in light of experience to date but the qualifying clause quote essentially unquote should not be overlooked. I consider this rather significant in view of Trainor's recent statement to Howard about anticipated difficulties in factory processing. Please inform Howard and Hopkins.

P. K. FROLICH.

STANDARD OIL DEVELOPMENT COMPANY,  
P. O. Box 243, Elizabeth, N. J., October 4, 1939.  
CA-708.5 x 713.2

Mr. R. P. RUSSELL,  
26 Broadway, New York, N. Y.

DEAR MR. RUSSELL: In response to your letter of September 27, I am attaching a table giving a rough comparison of the physical and chemical properties of vulcanizates of natural rubber, copolymer, Buna-S and Buna-N.

This comparison has been worked out by Messrs. Sparks and Lightbown on the basis of the best information we have been able to obtain to date. As our data on the two Buna products are rather meager, it is not possible for us to present the comparison on a quantitative basis, giving actual numerical values. Although we had hoped to obtain such information by making tests of our own on Buna-N and on the limited amount of Buna-S which we have on hand, we have not found it possible to spare the time for such studies, in view of the pressure of the copolymer project.

As you know, each one of these synthetic rubbers requires its own compounding and curing technique which has to be worked out by trial and error, and therefore is rather time-consuming.

Very truly yours,

PER K. FROLICH,  
Chemical Laboratories.

Table.

PKF: hf.

c. c.: Mr. E. V. Murphree.

*Comparison of vulcanizates of copolymer, natural rubber, and buna*

[1=Excellent; 2=Good; 3=Fair; 4=Poor]

Property	Rubber	Copolymer	Buna	
			S	N
Tensile Strength "Pure Gum".....	1	1	4	1
" " Reinforcing Loading.....	1	2	1	4
" " Nonreinforcing Loading.....	2	1	4	2
Elongation.....	2	1	2	3
Extensibility under Mild Stress.....	2	1	3	2
Rebound, Room Temperature.....	1	4	1	1
" " 100° C.....	1	1	1	4
Abrasion Resistance Unloaded.....	4	4	4	1
" " Optimum Carbon Black.....	2	1	1	1
Flex Resistance of Tread Stock, 25° C.....	2	1	1	4
Electrical Properties, Dry.....	1	1	4	4
" " Wet.....	3	1	4	1
Molding Properties.....	1	1	1	4
Calendering Properties.....	1	1	2	2
Vulcanization Rate at High Temperatures.....	1	2	1	1
Compression Set 70° C.....	1	1	1	1
Tear Resistance Black Loaded.....	1	1	1	1
Accelerator Choice.....	1	3	1	1
Water Absorption.....	1	1	1	1
Discoloration of Age Resistant Stocks.....	4	1	4	4
Resist. to Prevulcanization.....	3	1	4	4
Resist. to Overvulcanization.....	3	1	1	1
Chemical Resistance: Mineral Acids.....	4	1	4	4
" " Ozone.....	4	1	4	4
" " Chlorine.....	4	4	4	4
Resistance to Oxidation: 70° Bomb.....	3	1	1	1
" " " 70° Oven.....	3	1	1	1
" " " 100° Oven.....	3	1	1	1
Solvent Resistance: Hydrocarbons.....	4	4	4	1
" " Alcohols.....	1	1	1	1
" " Ethers, Esters.....	4	1	4	4
" " Chlorohydrocarbons, gen.....	4	3	4	4
" " Ethylene Dichloride.....	4	1	4	4
Sunlight Resistance: Black Stocks.....	3	2	?	1
Price.....	1	1	4	4

*Comparison of rubber and butyl rubber*

	Rubber	Butyl Rubber
<b>A. Character:</b>		
1. Aging.....	Fair.....	Excellent.
2. Electrical properties.....	Good.....	Excellent.
3. Pure gum tensile.....	Excellent.....	Excellent.
4. Tensile of stocks with carbon-black loading.....	Excellent.....	Fair.
5. Tensile of stocks with other loadings.....	Excellent.....	Excellent.
6. Flex resistance.....	Good.....	Excellent.
7. Abrasion resistance.....	Good.....	Excellent.
8. Impermeability to gases.....	Fair.....	Excellent.
9. H <sub>2</sub> O resistance.....	Fair.....	Excellent.
10. Vibration damping.....	Good.....	Superior to rubber.
11. Heat build-up.....	Good.....	Doubtful, perhaps higher than rubber.
12. Acid resistance.....	Poor.....	Excellent.
13. Oil resistance.....	Poor.....	Poor.
14. Resistance to other solvents.....	Variable.....	Variable (better in benzol).
15. Elongation.....	About 700-800%.....	About 900-1,000%.....
16. Sunlight resistance.....	Fair.....	Poor unless 30% or more carbon black added.
17. Curing rate.....	Fast.....	Slow.
18. Compression-set.....	Good.....	About same as rubber.
<b>B. Processing:</b>		
1. Time of break-down.....	15-60 minutes.....	None required.
2. Scorchiness (Danger of prevulcanization).....	High in some stocks.....	Probably none.
3. Ease of flow in mold.....	Excellent.....	Excellent.
4. Calendaring.....	Excellent.....	Probably difficult.
5. Tubing.....	Excellent.....	Probably fair to good.
6. Hot tear resistance.....	Good.....	Excellent.
<b>C. General:</b>		
1. Variety of applications.....	Very wide.....	Probably as wide as for rubber.
2. Odor.....	Characteristic.....	Odorless.

I. E. LIGHTBOWN,

*Esso Laboratories, Chemical Division.*

IEL: hf.

JANUARY 16, 1940

ACUSHNET PROCESS COMPANY,

*New Bedford, Massachusetts, U. S. A., December 19, 1939.*

Dr. P. K. FROLICH,

*Director, Chemical Laboratories,**Standard Oil Development Company,**P. O. Box 243, Elizabeth, New Jersey.*

DEAR DR. FROLICH: This letter concerns the subject of proposed cooperative development of butyl rubber for commercial applications, mentioned in my letter dated November 29, 1939, and in Item No. 14 of your reply of December 5, 1939. We intend to summarize the mutual benefits of such collaboration and to particularize the competitive advantages of Butyl Rubber as a commercial rubberlike material.

**A. Competitive Advantages of Butyl Rubber for Commercial Applications:**

1. High ultimate elongation.
2. High tensile strength of so-called "pure gum" compounds.
3. Excellent ozone resistance.
4. Excellent resistance to tearing, over a wide range of temperatures.
5. Resistance to acids, and oxidation.
6. Flex-cracking resistance (and flexibility) over a wide range of temperatures.
7. Low stress required to produce a given elongation.
8. Low heat build-up as a corollary of No. 7.
9. Low compression set.
10. Excellent Moldability (i. e., ready flow in molding).
11. Good aging resistance without special antioxidants.
12. Considerable pigmentation possible without the concomitant increase of hardness or loss of flexibility.
13. Electrical resistivity.
14. Water absorption resistance.
15. Low permeability to gases.

16. Resistance to copper deterioration.
17. Excellent vibration absorption.
18. Low shrinkage with temperature changes.
19. Domestic source of basic ingredients.
20. Freedom from objectionable odor.

We have checked and confirm all the properties listed except Nos. 3, 13, and 16, which points we have yet to investigate.

We believe the most important factors of commercial advantage in competition with other synthetic rubbers are as follows:

1. Flexibility (and flex-resistance) over a wide range of temperatures.
2. Stress-strain characteristics (hysteresis curve).
3. Moldability.
4. Tear resistance (hot or cold).
5. Minimum odor of vulcanized material.

The above factors are listed in order of importance. In each of the five properties Butyl Rubber is decidedly superior to any other synthetic or natural rubber, except in reference to moldability in which case it is equalled by natural rubber and in reference to tear resistance in which it is equalled by butadiene polymers.

We are using Neoprene (3 types), Buna (2 types), and Thiokol (3 types) in addition to modifications of the above with polystyrenes, polyvinyls, polybutylenes and natural rubber for commercial applications.

In each case we have examined the various materials for the properties pertinent to the particular article, conducted various tests and supplied the most desirable material or modification. In no instance have we emphasized one material in general. We believe that under these circumstances we are particularly qualified to examine your material as it is developed, to modify it in compounding practice to meet its competitive shortcomings, to make the most of its possibilities, and to test it in comparison with other synthetics or natural rubber for specific applications.

We should be glad to discuss the manner, the method, and the details of such a cooperative arrangement at any time.

Yours very truly,

ACUSHNET PROCESS COMPANY,  
(Signed) PHILIP T. GIDLEY,  
*Chemical and Development Engineer.*

PTG/c.

Comparative properties of elastomers (selected for mechanical applications with shore "A" durometer hardness of 50-60)

	Properties	Rubber	(Perbunan) Synthetic No. 1	(Neoprene) Synthetic No. 2	(Butyl Rubber) Synthetic No. 3	(Thiokol) Synthetic No. 4	(Polyvinyl Chloride) Synthetic No. 5
1	Moldability	Excellent	Very good	Good	Excellent	Fair	Fair
1A	Odor	Very slight	Very slight	Slight	Very slight	Noticeable	Very slight
1B	Original Tensile Strength	3,200 P. S. I.	2,500 P. S. I.	1,850 P. S. I.	2,000 P. S. I.	1,550 P. S. I.	4,500 P. S. I.
2	Ultimate Elongation	600%	450%	350%	730%	400%	No Data.
3	Permanent Set (Tensile)	20%	14%	6%	20%	25%	" "
4	Stress at 300% Elongation	350 P. S. I.	1,800 P. S. I.	1,750 P. S. I.	150 P. S. I.	1,350 P. S. I.	" "
5	Air-Bomb Tensile Strength	600 P. S. I.	2,400 P. S. I.	1,695 P. S. I.	1,900 P. S. I.	1,550 P. S. I.	" "
6	Air-Bomb Condition of Specimen	Lifeless & Sticky	Excellent	Excellent	Very Good	Excellent	Decomposed.
7	Oxygen Bomb Tensile Strength	1,500 P. S. I.	2,550 P. S. I.	1,850 P. S. I.	1,950 P. S. I.	1,550 P. S. I.	No Data.
8	Oxygen Bomb Condition of Specimen	Gummy	Excellent	Excellent	Excellent	Excellent	Very Good.
9	Geer Oven Tensile (Note #6)	2,900 P. S. I.	No Change	No Change	No Change	No Change	No Change.
10	Geer Oven-Condition of Specimen	Soft	"	"	"	"	"
10A	Sunlight-Resistance	Poor	Excellent	Excellent	Excellent	Excellent	Excellent.
11	Abrasion-Resistance (Note #11)	Good	Very Good	Very Good	Very Good	Good	Fair.
12	Tear Resistance (Cold)	3.5 KG & CM	5.0 KG & CM	5.0 KG & CM	7.0 KG & CM	No Data	No Data.
13	Compression Set (50%, 48 Hr.)	8%	5%	20%	5%	40%	80%
14	Impact Resilience (% Energy Ret.)	70%	50%	20%	No Data	40%	No Data.
15	Fibration Reaction (Note #15)	Absorbs & Stores	Absorbs & Dissipates.	Absorbs & Dissipates.	Absorbs & Dissipates.	Dissipates, torts.	" "
16	Flex Resistance (Note #16)	450,000	1,000,000	750,000	3,000,000	350,000	Good, No Exact Data
16A	Metal Adhesion	750 P. S. I.	750 P. S. I.	300 P. S. I.	750 P. S. I.	500 P. S. I.	100 P. S. I.
17	Oil Swelling (120 Hrs.)	25%	55%	-10%	200%	0.0%	No Change
18	Maximum Oil Swelling	60%	55%	-10%	450%	0.0%	" "
19	Oil-Condition of Specimen	Gummy, Tens. Loss.	Firm, Exc. Tens. Slip.	Firm, Good Tens.	Dissolved, No Tens.	No Change	" "
20	Gasoline Swelling (24 Hrs.)	57%	30%	18%	500%	0%	" "
21	Maximum Gasoline Swelling (Note #21)	90%	50%	21%	900% plus.	3%	Practically No Change.
22	Gasoline-Condition of Specimen	Gummy, Poor Tens.	Firm, Exc. Tens.	Sl. Swollen, Good Tens.	No Tensile	No Change	No Change.
23	Hot Oil Swelling, 220° F., 72 Hrs.	280%	6%	25%	Dissolved	Decomposes	-60%
24	Hot-Oil Condition	Soft & Swollen	No Change	Firm	Dissolved	Decomposed	No Change.
25	Water Absorption, Max	10%	5%	23%	6.5%	No Data	Swells (Cold) Dissolves (Hot).
26	Resistance to Gas Permeability	1	9	9	10	10	10.
27	Acid Resistance (Note #27)	Disintegrated	Hardened, Vol. Inc.	Hardened, Vol. Inc.	Only 20% Tensile Deter.	Good	Good.
28	Alkali Resistance (Note #28)	No Change	No Change	15% Inc.	No Change	No Data	Dissolved.
29	Heat Resistance	200° F.	450° F.	350° F.	350° F.	18° F.	300° F.
30	Cold Resistance	-50° F.	-30° F.	0° F.	-60° F.	-40° F.	-20° F.

## Comparative properties of elastomers (selected for mechanical applications with shore "A" durometer hardness of 50-60)—Continued

	Properties	Rubber	(Perbunan) Synthetic No. 1	(Neoprene) Synthetic No. 2	(Butyl Rubber) Synthetic No. 3	(Thiokol) Synthetic No. 4	(Polyvinyl Chloride) Synthetic No. 5
31	Flexibility, Low Temp. (Note #31)	-70° F	-40° F	-10° F	-85° F	-60° F	No Data.
32	Dimensional Changes at Low Temp. (Thickn.)	No Change	No Change	5% Decrease	No Change	No Change	No Data.
33	Dimensional Changes at High Temp. (Thickn.)	"	5% Inc	V. Sl. Inc.	V. Sl. Inc	10% Inc.	Not Recommended.
34	Ozone Resistance	Very Poor	Very Good	Very Good	Excellent	Excellent	Excellent.
35	Cold Flow (600 P. S. I., 24 Hrs.)	6.8%	8.0%	30%	10%	60%	Poor.
36	Alcohol Resistance	Unaffected	Unaffected	Unaffected	Unaffected	Unaffected	Do.
37	Acetone Resistance	do	do	do	Swollen	do	Do.
38	Aliphatic Hydrocarbons Resistance	Very Poor	Very Good	Very Good	do	Excellent	Poor to Fair.
39	Aromatic Hydrocarbons Resistance	do	do	Good	Very Good to Excellent	do	Excellent.
40	Ethylene, Chloride Resistance	do	Fair to Good	do	Excellent	Fair	No Data.
41	Copper Resistance	do	Very Good	Very Good	do	No Data	Do.
42	Metal Corrosion Effects	Discolors	Discolors	Sl. Discolors	Discolors	Discolors	None.
43	Butterfat Resistance	75% V. Inc	Less than 10% Inc	Less than 10% Inc	No Data	No Data	No Data.
44	Hot Tear Strength	Very Good	Very Good	Poor to Fair	Excellent	Poor	Poor.

i. e., better than Perbunan and Neoprene in aromatics.

Note #28. 25% Na on Aqueous Solution 212° F, 120 Hrs.

Note #13. Dissipation of Energy Less in Synthetic No. 1 than Synthetic No. 2, very great in Synthetic No. 3.

Note #32. 10 Minutes at 50° F.

Note #21. After 500 Hrs. Synthetic No. 1 and Synthetic No. 2 decrease about 20% which remains constant to over 1,000 Hrs.

Note #21. After 500 Hrs. Synthetic No. 1 and Synthetic No. 2 decrease about 20% which remains constant to over 1,000 Hrs.

A. P. C. Co. 37/40.

BB.

Note #31. 1" x 3" x 1/8" Specimen Flexes 180° without cracking 15-minute exposure.

Note #9. Synthetic No. 1. Synthetic No. 2 increase sl. in tensile strength.

Note #11. All Materials (except

Note #16. No. of flexings to failure at room temperature.

Note #27. Concentrated sulfuric at room temp., 144 hrs.

Note #43. 17 days immersion in butter at 115° F.

P. T. GUNLEY, Development Eng.

## EXHIBIT No. 389

[Copy]

DECEMBER 20, 1940.

## MEMORANDUM—DISCUSSION OF BUTYL RUBBER WITH THE U. S. RUBBER COMPANY

A meeting was held with representatives of the U. S. Rubber Company at their offices in New York City yesterday afternoon, to discuss possible applications for Butyl Rubber which are indicated by their work at the present stage. Those present at this discussion for the Development Company were: Mr. W. C. Asbury, Mr. J. A. Britton, Jr., Dr. J. R. Brown, Jr., Mr. H. W. Fisher, Dr. P. K. Frolich, Mr. A. D. Green, Dr. M. B. Hopkins, Mr. O. V. Tracy, Mr. R. F. Wolf, and the writer. Dr. Gibbons headed the discussion of the U. S. Rubber and they had representatives there from their various departments.

At the start of the discussion it was decided that uses for Butyl rubber should be considered first on the basis of national emergency, second, on the basis of applications where Butyl rubber might have a special market which would demand a price higher than natural rubber, and third, applications where Butyl rubber could be used as a replacement for natural rubber either at the price of natural rubber or at a lower price. Possible applications discussed are listed below:

## TIRES

The tire group includes manufacture of inner tubes and rubber parts for automobiles, as well as straight tire manufacture. So far as tires are concerned, the results for Butyl rubber are about the same as those previously reported; namely, that it does not appear nearly as suitable for tires as natural rubber. It was felt, however, that in an emergency tires could be built of Butyl rubber which would be satisfactory for a good many services. Under present conditions where supplies of natural rubber are available, it was felt that Butyl rubber could only serve as a substitute for reclaimed rubber and on this basis would be worth about 8¢/lb., with the price of natural rubber at 20¢/lb.

The use of Butyl rubber for inner tubes is quite promising basically since data obtained by the laboratories and the U. S. Rubber Company both checked on the fact that Butyl rubber is more impermeable to air than natural rubber. In the actual manufacture of inner tubes difficulty has been experienced in splicing the extruded tube together. In the inner tube manufacturing operation a tube of rubber is extruded and cut into the lengths desired for inner tubes and the ends are stuck together. So far U. S. Rubber has not been able to make these ends stick and as a consequence they have not been able to make a test on an inner tube. The outlet for inner tubes for U. S. Rubber alone is about 1,000 tons/month, and for the industry about 4,000 tons/month, which is the equivalent of 133 tons/day. All that would be needed to get into the rubber business on a substantial scale for Butyl rubber would be to demonstrate the feasibility of making inner tubes and to show that such inner tubes were at least equivalent to those made from natural rubber. This appears to be the most promising bulk outlet for Butyl rubber and it is planned to work in very close cooperation with U. S. Rubber to see if the splicing of the ends of the inner tubes can be accomplished. U. S. Rubber representatives felt the added expense of manufacturing inner tubes from Butyl rubber, due to the longer curing time required, would be fully compensated by the lower permeability to air.

A considerable amount of rubber, amounting to roughly 150,000,000 lbs./year, is used for miscellaneous purposes on automobiles, such as cushions for engine mountings, mats for inside the cars, running-board mats, and the like. U. S. Rubber did not feel that Butyl rubber would be a satisfactory replacement for a good many of these uses but did feel that it might be all right for floor mats and running-board mats. Here, however, they felt it would simply serve to replace reclaimed rubber and its value would be roughly 8¢/lb. based on present rubber prices.

There may be a small quantity of Butyl rubber used for the manufacture of air bags for vulcanizing tires. The requirements of U. S. Rubber for this service, when using natural rubber, is about 50,000 lbs./year.

## MECHANICAL GOODS

The rubber outlet for mechanical goods, in U. S. Rubber's case, amounts to 10/12,000,000 lbs./year. They manufacture 30/40,000 items including things such as steam hose, acid hose, conveyor belting, gaskets, packing, and the like. In general it was felt that about 70% of the rubber used for these purposes could be replaced by Butyl rubber in an emergency. Under normal conditions a certain amount could be used as a replacement for reclaimed rubber but at a low price. It was felt that there might be an outlet for approximately 6,000 lbs./month of Butyl rubber in fields where it would have an advantage compared to natural rubber.

## GENERAL PRODUCTS

Under this heading are included a wide variety of materials, such as battery separators, golf balls, thread, soles and heels, tank linings, and the like. It was felt that the use of Butyl rubber for these general products, outside of serving as a replacement for reclaimed rubber, would be largely in developing new fields for rubber. The rubber going into these general products amounts to 10/12,000,000 lbs./year.

In discussing new fields it was felt that there may be some outlet, although possibly rather small, for Butyl rubber in connection with the manufacture of chemical-resistant gloves and aprons, particularly for purposes where natural rubber is not suitable, as, for example, when handling nitric acid. It was felt that tank linings, both for tank cars and for tanks themselves, and linings for general corrosion protection, offered a very promising outlet for Butyl rubber. One of the difficulties encountered in this field has been to get Butyl rubber to stick to metal, or to stick to rubber. In the latter case a rubber coating could first be put on the material to be lined, and the Butyl rubber put on top of that. At the meeting it was pointed out that the Chemical Division had recently been quite successful in getting a strong bond between Butyl rubber and natural rubber. It was estimated by U. S. Rubber that some 15/20,000 lbs./month of Butyl rubber could be used for corrosion protective linings at the present time, and that its use would largely represent a new field for such linings. This, of course, is based on the assumption that a satisfactory means of bonding Butyl rubber either to natural rubber or to metal is available.

## ELECTRIC WIRE

U. S. Rubber makes a considerable amount of rubber-insulated electric wire for normal services; they are not in the high-tension cable field. It was the feeling of the U. S. Rubber people that Butyl rubber could be used in compounds containing up to 35% rubber and could be handled reasonably well in existing equipment. To a certain degree Butyl rubber for this service would represent a replacement for reclaimed rubber. The possible outlet for Butyl rubber in U. S. Rubber's case would amount to 700,000 lbs./year.

## FOOTWEAR, COATED PRODUCTS

A compound made from Butyl rubber for footwear, such as rubber soles and heels, had about 50% the tensile strength of natural rubber, and its abrasion characteristics were a little inferior to those of natural rubber. It is felt, however, that the oil resistance of the Butyl rubber would be poor and that it would not be suitable for use except in an emergency for rubber soles and heels.

This particular group feels that Butyl rubber may have excellent application for heavily coated fabrics such as are used for raincoats, boots and the like, and are quite interested in investigating Butyl rubber for this service. It is the feeling of this group that an outlet of around 250,000 lbs./year for Butyl rubber could be built up, where Butyl rubber would be worth either the price of natural rubber or a higher price. The total outlet for rubber in this general field amounts to about 16,000,000 lbs./year in U. S. Rubber's case, and they represent about fifty percent of the industry.

## GENERAL

The total outlet in the industry for rubber to be used in inner-tubes is around 130 tons/day, so that a 50 ton/day Butyl rubber plant would not be of too large a size for this use. Due to difficulty encountered in splicing tubing made from Butyl rubber, no inner-tubes have yet been introduced or tested.



Uses for rubber other than inner-tubes, where its quality would be such that it would demand a price equivalent to that of natural rubber, are quite small in magnitude and would not at the present time appear to justify a plant of probably more than 5 tons/day capacity. Even with this size plant there may be difficulty in disposing of the product.

U. S. Rubber has not had much of an opportunity to investigate many of the outlets for Butyl rubber outside the tire field, and arrangements are being made to send them more samples for this purpose. With further work the picture on outlets for Butyl rubber in various fields may improve. U. S. Rubber seems quite interested in this development and are apparently willing to do considerable work on finding uses for Butyl rubber.

E. V. MURPHREE.

evm:jbf

Copy to Mr. W. C. Asbury, Dr. C. L. Brown, Dr. P. K. Frolich, Mr. A. D. Green, Mr. H. W. Fisher, Dr. M. B. Hopkins, Mr. F. A. Howard, Mr. R. P. Russell.

#### EXHIBIT No. 390

#### EXTRACT FROM EXECUTIVE COMMITTEE MEMORANDA

Date: August 29, 1940.

Present: OH, RWG, WEP, FHB, Jr., DLH, ELL, TCMcC.

Mr. F. A. Howard joined the meeting and presented for inspection of the Committee the first tire made by the Firestone Tire & Rubber Company of butyl rubber—the first tire made 100% of petroleum. He said this tire had been run 2,500 miles and that it showed 10% more wear than natural rubber tires.

Mr. Howard said he estimated that butyl rubber would cost between 7 cents and 15 cents per pound, depending upon the method of manufacture, versus 20 cents per pound for natural rubber at this time. He stated, also, that butyl rubber is not satisfactory at present for the manufacture of tires as there are difficulties which develop at high temperature and at speeds over 30/40 m. p. h. to be overcome. Our interests, however, are working on plans for its improvement.

Mr. Howard stated a further discussion on the subject of butyl rubber manufacture for the Government discloses the fact that this business now is under the jurisdiction of the Reconstruction Finance Corporation instead of the National Defense Advisory Commission, and it therefore would be necessary to clear the subject anew. He advised of a discussion with a Mr. Schramm et al., and said they had reached the following conclusions:

(1) The Reconstruction Finance Corporation should do something in the line of financing for projects for synthetic rubber production;

(2) Decision as to the amount can be made later;

(3) Government funds should not be allotted for private industries, but for special plants to be built for the Government and probably shut down until needed. It was not the intent to interfere with commercial business.

There might be need for three 20,000-ton plants.

Mr. Howard said Firestone and our interests are agreed that Firestone is ready to offer to build a 20,000-ton buna plant for Government use. It probably will be built on the basis of five-ton units similar to the five-ton polymerization plant at present in operation at Baton Rouge. We are to assist them in designs for such plants, and to furnish the raw material.

Mr. Howard said our interests are prepared to proceed with the manufacture of butyl rubber shortly, possibly on the basis of a 5,000/10,000-ton plant, furnishing the capital, but with some Government protection. This plant might be erected at Baytown, but the question of location has not been decided.

Mr. Howard said Mr. H. C. Wiess had received advice from Mr. Robert Wilson of the National Defense Advisory Commission that the Commission find in all probability they will be able to obtain 20,000,000 gallons of toluene for Government requirements from additional small sources without the Government doing any financing, and that therefore under these circumstances the Government would not consider it necessary to finance the toluol plant which Humble Oil & Refining Company recently offered to have built at a cost of approximately \$10,750,000, and to operate. (See Committee memorandum of August 14.)

There seemed to be a divergence of opinion as Mr. Howard understood the Ordnance Department were of the opinion that the Government should go ahead

with this project. Mr. Howard said there seemed to be nothing further for us to do in the matter at this time, and that our interests' aid in the project would cost about \$200,000.

## EXHIBIT No. 391

*Butyl Rubber Costs*

<b>Raw Material:</b>	
Isobutylene @ 7.76¢/gal-----	1.70
Isoprene @ 30¢/#-----	1.20
<b>Operating Costs:</b>	
Operating Labor and Supervision (Approximately 26 men/shift)----	2.17
Maintenance	
Normal-----	2.01
Changes and Additions-----	1.55
Utilities	
Fuel-free-----	.46
Fuel @ 12¢/MM Btu-----	.86
Chemicals	
Methyl Chloride-----	.35
Aluminum Chloride-----	.30
Other chemicals-----	.49
Total-----	1.25
Other Supplies-----	.12
Burden and Administrative and General Expenses-----	3.18
Containers-----	.71
Total, excluding Royalty, Depreciation, Profit-----	15.21
Say-----	15.00
Baton Rouge, Louisiana.	
February 6, 1942.	

## EXHIBIT No. 392

Confidential

JUNE 6, 1940.

## LARGE-SCALE PRODUCTION OF BUNA S AND BUTYL RUBBERS—MEMORANDUM

Dr. Hopkins, Mr. Fisher, and myself had a discussion yesterday on large-scale production of Buna S and butyl rubbers. The purpose of this discussion was to prepare some information which might be submitted, at least in part, to the Rubber Manufacturers' Association who were requested by the Government to assemble information of this type.

Mr. Green has prepared figures on production of Buna S and butyl rubber on scale of production of 100 and 300 tons/day. The basic raw material used in Mr. Green's studies is normal butane. In the case of Buna S the normal butane is catalytically dehydrogenated to normal butylene, the normal butylene concentrated by acid absorption, and the concentrated butylenes then cracked to produce butadiene. Styrene, which is one of the components of Buna S, would be produced by reaction of benzol with ethylene followed by dehydrogenation of the ethylene benzene to styrene. In the case of butyl rubber the normal butane would first be isomerized to isobutane and then catalytically dehydrogenated to isobutylene and then concentrated by acid absorption. The small amount of butadiene required would be obtained for the smaller plant by cracking of butylenes available from the steam cracking operation at Baton Rouge. For the larger plant these butenes would be supplemented by normal butylenes absorbed from Humble's C<sub>4</sub> cut after it leaves the hot acid operation. The information Mr. Green has prepared is as follows:

## BUNA S

*Yields of Butane in Preparing Butadiene*

Dehydrogenated-----	80%	Consumption of butadiene 0.825/lb. of rubber. 100 Tons of rubber/day require 2400 B/D of Butane.
Absorbed-----	95%	
Cracking-----	50%	
Concentrated-----	95%	
Over-all-----	36%	

Scale	100 Tons/Day of Rubber	300 Tons/Day of Rubber
Raw Materials:		
Butane—B/D.....	2,400	7,200
Propane—MCF.....	480	1,440
Benzol—Gal.....	7,000	21,000
Investments:		
Butadiene.....	\$9,600,000	\$23,300,000
Styrene.....	3,600,000	8,300,000
Buna.....	7,500,000	18,000,000
Totals.....	\$20,700,000	\$49,600,000
Operating Costs:		
Butadiene @ 8.6 and 7.9.....	7.1	6.5
Styrene @ 11.4 and 9.5.....	2.9	2.4
Processing ex. Chem.....	3.0	2.5
Chemicals.....	3.0	3.0
Totals.....	16.0	14.4

In preparing the cost figures given above, butane has been taken at 70¢/bbl., propane at 8¢/MM BTU, and benzol at 16¢/gal. An increase of \$1.00/bbl. in the cost of butane would increase the cost of Buna-S about 1.2¢/lb.

# BUTYL RUBBER

## *Yields of Butane in Preparing Isobutylene:*

Isomerization.....	95%	1,060 Lbs. Isobutylene/1 Lbs. Butyl
Dehydrogenation.....	80%	Rubber.
Concentration.....	95%	1,550 Bbls. Normal Butane/100 Tons
		Butyl Rubber.
Overall .....	72.2%	0.05 Lbs. Butadiene/Lb. Rubber.

	100 Tons/Day	300 Tons/Day
Investments:		
Isobutylene.....	\$4,400,000	\$10,500,000
Butadiene.....	750,000	2,200,000
Butyl Rubber.....	4,650,000	11,100,000
Totals.....	9,800,000	23,800,000
Production Cost:		
Isobutylene @ 3.1 and 2.7.....	3.3	2.9
Butadiene 12.2 and 9.2.....	0.6	0.5
Operation.....	3.6	3.2
Totals.....	7.5	6.6

The cost used for butane is the same as that used in the Buna S case, namely, 70¢/bbl. A change in butane price of \$1.00/bbl. would increase the cost of butyl rubber by 0.8¢/lb.

In the case of Buna S plant, it is assumed that fractionation equipment exists for taking isobutane from normal butane and that this operation is carried out to obtain the isobutane. In other words, no allowance has been made in investment or in operating costs for preparing the normal butane used in Buna S manufacture.

It is believed it might be possible to build a 100-ton plant for either Buna S or butyl rubber in two years' time, if all possible speed was used and word given to go ahead as rapidly as possible. For the larger plant it is felt that two and one-half years minimum would be required.

I had some discussion with Mr. Giraud on butane supplies available to Baytown. At the present time some 5,000 B/D of butane are going to the thermal polymer plant which could be replaced with propane. Humble is interested in a recycle gas plant at a location near Baytown which would produce about 1,000 B/D of butane. It is possible that some 1,200 B/D of butane might be obtained from Sinclair in the East Texas field. There are miscellaneous small quantities of butane that could be either picked up in this East Texas field or

shipped to Baytown by tank car which might amount to 1,000 B/D. These quantities would total about 8,000 B/D of butane. This amount would be sufficient for production of about 300 tons/day of Buna S or 500 tons/day of butyl rubber.

It is felt that butane is the most attractive raw material for Jersey due largely to the particularly favorable situation existing at Baytown on butane supplies. It is not known how much butane could be made available at other locations, although this could be developed if desired. So far as is known, there are no other oil fields that have anything like the potentialities for butane supplies in this country as exist in the East Texas field. More abundant propane supplies are available in the East Texas field than exist elsewhere. Ethylene could be produced from this propane by cracking and converted into methyl alcohol which could then be converted into aldol, and then to butylene glycol, and finally to butadiene. It is believed that very large supplies of butadiene could be made available in this way although no figures have been prepared on the investment and production costs for butadiene so obtained.

E. V. MURPHREE.

EVM: BF.

Copy to Dr. C. L. Brown.

Mr. H. W. Fisher.

Dr. P. K. Frolich.

Mr. A. D. Green.

Dr. M. B. Hopkins.

Mr. F. A. Howard.

Mr. R. P. Russell.

[Handwritten:]

\$40,000,000 would produce 25,000 long tons per annum; 100,000 acres plantation, 550 lbs per acre average about 300 tons about 2,000.

Production and delivery cost 7-8 cents pound. 4-5% depreciation. No return capital.

#### EXHIBIT No. 395

*Isobutylenc availability at Bayway (from R. R. Poland, 1/16/42)*

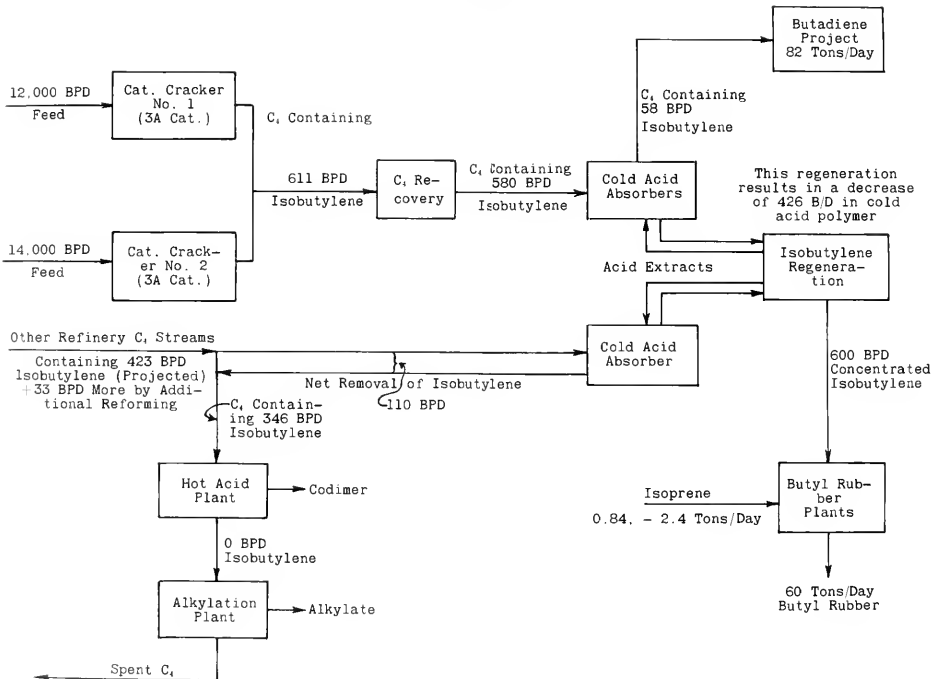
[From F. R. Poland, 1/16/42]

A. NO CAT. CRACKER—REFORMING TO 76 ASTM, 16,300,000 BPY NAPHTHA

	B/D 1C <sub>4</sub> H <sub>10</sub>	B/D nC <sub>4</sub> H <sub>10</sub>	B/D 1C <sub>3</sub> H <sub>8</sub>	B/D nC <sub>3</sub> H <sub>8</sub>	B/D Total
Total C <sub>4</sub> 's produced (incl. ½ of Lt. P. C. C <sub>4</sub> )	502	2,113	536	1,269	4,420
Recovered 95	477	2,003	510	1,294	4,194
136 B/D crude dimer and trimer			177		
Remaining			333		
Selective poly (use 90% of 1C <sub>4</sub> H <sub>8</sub> =405 B/D codimer)			300	240	
Remaining	477	2,003	33	964	3,477
7,700,000 gals/yr. butyl alcohol					
$\frac{7,700,000}{365} \times \frac{1}{42} \times 1.7$				865	

B. AVIATION CAT. CRACKER (3A CAT.)—REFORMING TO 76 ASTM—16,300,000 BPY NAPHTHA

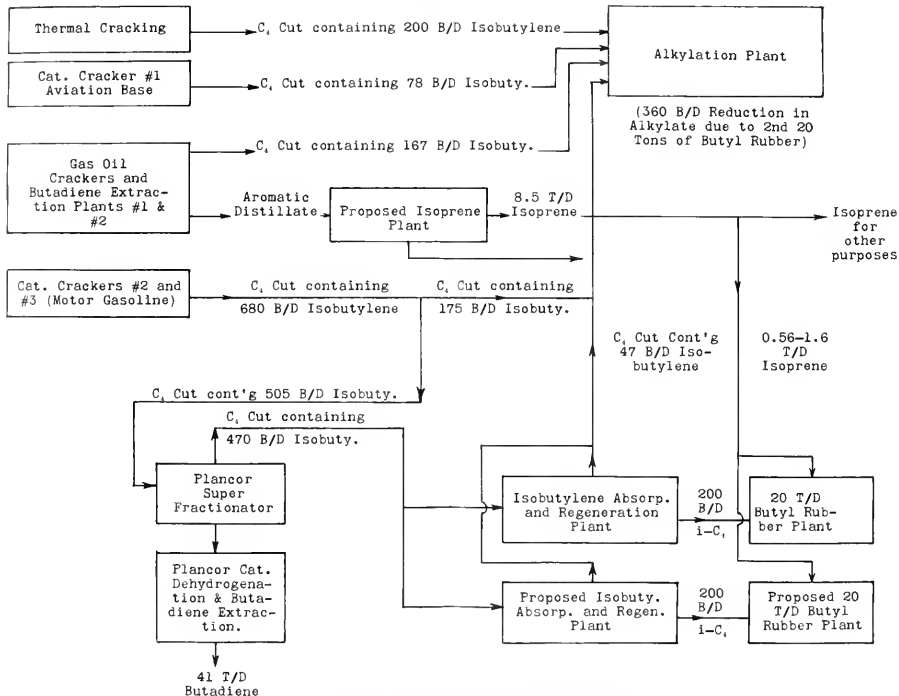
	B/D 1C <sub>4</sub> H <sub>10</sub>	B/D nC <sub>4</sub> H <sub>10</sub>	B/D 1C <sub>3</sub> H <sub>8</sub>	B/D nC <sub>3</sub> H <sub>8</sub>	B/D Total
Total C <sub>4</sub> 's produced (incl. ½ Lt. P. C. C <sub>4</sub> )	1,583	2,236	602	1,570	5,991
Recovered @ 95%	1,506	2,121	572	1,491	5,690
136 B/D crude dimer and trimer			177		
Remaining			395		
Selective poly (use 90% of 1C <sub>4</sub> H <sub>8</sub> =486 B/D codimer)			355	224	
Remaining	1,506	2,121	40	1,207	4,874
7,700,000 gals/yr. butyl alcohol				865	



EFFECT OF PROPOSED BUTYL RUBBER  
PROJECT ON ISOBUTYLENE BALANCE  
AT BAYTOWN

A. D. G.  
 1/16/42





EFFECT OF PROPOSED BUTYL RUBBER PROJECT  
ON ISOBUTYLENE BALANCE AT BATON ROUGE

A.T.G.  
1/16/42





EXHIBIT No. 394

SEPTEMBER 17, 1941.

Mr. STANLEY CROSSLAND,

*Rubber Reserve Company,**Lafayette Building, Washington, D. C.*

DEAR MR. CROSSLAND: Confirming our telephone conversation this morning, we propose the following:

1. By letter of instructions to Standard Oil Co. of La., Standard Oil Development Co., and E. B. Badger & Sons, Defense Plant Corporation will instruct each of them to suspend all work on the Baton Rouge butadiene project for one year. In the event the option which Standard Oil Co. of La. now holds on the proposed site for the butadiene plant cannot be renewed, Standard Oil Co. of Louisiana will purchase this site before the expiration of the option date, October 1, 1941.

2. Standard Oil Co. of Louisiana and Rubber Reserve Company will enter into an immediate purchase and sale contract on the following terms:

(a) Quantity, 8,000 short tons, butadiene.

(b) Delivery period, one year, beginning at buyer's option, between January 1 and April 1, 1943, deliveries to be approximately uniform over the yearly period.

(c) Delivery to be made f. o. b. Baton Rouge, La., in tank cars supplied by the buyer.

(d) Price to be estimated cost of production from plant covered by existing Defense Plant/Louisiana contract, with suitable escalator clause. In figures prepared July 11, 1941, and supplied to D. P. C. and Rubber Reserve soon thereafter, this estimated cost, including 20% write-off on the Defense Plant investment, was 13.42¢ per pound, f. o. b. Baton Rouge. By subsequent exchange of correspondence between Messrs. Crossland and Howard, 0.41¢ was deducted from the estimated cost by reduction of the items of fixed fee and overhead, and 0.15¢ added to the estimated cost for royalty payable to Standard Alcohol Company. With these adjustments the net estimated cost as of August 8, 1941, became 13.16¢ per pound, f. o. b. Baton Rouge. This figure is accordingly accepted by the parties as the base figure for the purchase contract. The proposed basis for the suggested escalator clause is that the price should be adjusted in accordance with the changes of the "All Commodities" price index, which can be identified as the first item in Table 1, page 748, of the MONTHLY LABOR REVIEW, United States Department of Labor, Bureau of Labor Statistics, March 1941 issue, Vol. 52, No. 3.

(e) In the event Defense Plant Corporation orders the resumption of work on the Baton Rouge butadiene plant within one year, and such plant is not actually completed and in operation on the expiration of the purchase contract, the purchase contract shall continue in effect and deliveries shall continue under it at the same approximately uniform rate of 8,000 tons per annum until the beginning of deliveries from the said plant.

(f) In the event Rubber Reserve Company shall for any reason fail to accept and pay for any portion of the butadiene herein contracted for, Standard Oil Co. of Louisiana may at its option treat such failure as cancellation *pro tanto* of the purchase contract, or it may sell the butadiene to others at the then market price for the account of Rubber Reserve, or consume it in its own operations, crediting Rubber Reserve with the then market price and charging it with the contract price.

3. Under the above arrangements, D. P. C. will have the right to proceed with the Baton Rouge butadiene plant project at any time before October 1, 1942. If it does not proceed at that time, nor make any arrangements for further delay, it would be obligated then to defray the expenses incurred by Standard Oil Development Co., Standard Oil Co. of Louisiana and Badger up to the date of the suspension letter, which expenses are now estimated to be approximately \$35,000, but are increasing at the rate of \$5,000 for the coming week, and even faster thereafter. Standard Oil Co. of Louisiana will not make any claim on account of any loss on the purchase of the site.

Very truly yours,

FRANK A. HOWARD.

FAH: MF.

cc Messrs. Rathbone.

Fisher.

Hopkins.

Russell.

## EXHIBIT No. 395

[Copy]

JANUARY 26, 1942.

Butyl rubber.

Mr. HOWARD J. KLOSSNER,  
*President, Rubber Reserve Company,  
Lafayette Building, Washington, D. C.*

DEAR MR. KLOSSNER: For your convenience we are giving you this up-to-date summary on the subject of Butyl rubber.

Butyl rubber is a new class of synthetic rubber-like product, a typical example of which is made from about 95 parts of isobutylene and 5 parts of butadiene. The isobutylene is a common product in all large oil refineries, and butadiene in these small amounts is easily available. No other raw materials are used. The butyl rubber can be most conveniently produced at the refinery where the isobutylene is produced. The processes and equipment used are of a type suited to an oil refinery. The product was originally produced in small batches, but we have now succeeded in developing a continuous manufacturing process which seems suitable for quantity production. We have also now proved that the same process and equipment can be used on straight isobutylene to produce the commercial product "Vistanex," which has been made by us by other processes and sold in a small way in the United States and abroad for some years. Vistanex is a rubber-like synthetic product which cannot be vulcanized by any ordinary means and has therefore been deemed unsuitable for general use in replacement of rubber, but which has a certain market as a rubber substitute and as an "extender" for rubber.

## QUALITY AND USES OF BUTYL RUBBER AND VISTANEX

Vistanex is a commercial product, well known throughout the rubber industry, where it has been used on a small scale for several years. Opinions should be available, if asked for, from many large rubber consumers, as to the extent to which Vistanex can be employed in supplementing the national rubber supply during the present emergency.

Butyl rubber is not a commercial product. It has however been rather extensively tested over a period of two years by the Firestone and U. S. Rubber companies, by General Electric, and by the Acushnet Process Co. In general, all four companies have indicated to us their ability to employ butyl rubber in substitution for natural rubber in limited uses, the extent of which they find it difficult to fix exactly, because of the lack of a sufficient background of commercial testing and actual experience with the product. We understand that the Chemical Division of OPM recently made a survey on the question of the quality and prospective uses of butyl rubber and Vistanex, and obtained opinions and reports on this subject from a variety of sources. We have not had access to the results of this survey but we assume they are available to you.

## POSSIBLE SUPPLY

From raw materials available from equipment now in use and planned for immediate construction in its refineries in the United States, Standard Oil Co. (New Jersey) and affiliated companies could produce somewhere between 120 and 200 short tons per day of butyl rubber. Judging the remainder of the oil industry on a comparable basis, raw material supplies adequate for any possible requirement would seem to be available.

## COST ESTIMATES AND CONTEMPLATED SALES PRICE

There is now being installed at the Baton Rouge refinery of the Standard Oil Co. of Louisiana the first commercial Butyl rubber plant, designed to produce 20 short tons per day of either butyl rubber or Vistanex. This plant is now scheduled for completion November 1st of this year. It has a project priority rating of A-1-E, which is not sufficient to secure any earlier completion. We estimate that, with our present state of knowledge of the process, the butyl rubber in this plant may cost about 15¢ per lb., when the plant is

operated at about designed capacity and reasonably satisfactorily in all other respects. We had considered introducing this product on the commercial market at a price of approximately 27¢ per lb., and have named this price in commercial negotiations. This rather high margin over estimated cost is required by the fact that the process and equipment are new and will therefore have to pass through a period of "children's diseases" in which production may be lower than anticipated, and cost higher, and the equipment originally installed may become partly obsolete as our knowledge of the new processes involved increases.

#### INVESTMENT COSTS AND CONSTRUCTION MATERIALS REQUIRED

Our present estimates are that a 20-ton-per-day unit, similar to the one being constructed at Baton Rouge, would cost \$4,500,000. The only important quantities of critical materials employed are stainless steel, fabricated steel, ordinary electrical equipment, and rubber mills. The mills might be borrowed from existing rubber plants.

#### POSSIBLE EXPANSION OF PRODUCTION

If it should appear to Rubber Reserve that increased quantities of Butyl Rubber and Vistanex, one or the other, should be produced, the first step would be to duplicate the present 20-ton unit under construction at Baton Rouge. If the necessary raw materials for construction were allocated for delivery schedules keeping pace with the requirements of the project, the two units might be completed as soon as the present single unit is scheduled for completion.

If further expansion is necessary, duplicates of the above units could be installed at the Baytown Refinery of Humble Oil & Refining Company, and if present designs were employed and no attempt made to economize by redesigning for larger units, the production might be expanded to at least 40 tons per day at Baytown by the end of the year, and by an additional 40 tons early in 1943.

Our understanding is that at the present time the full authority and responsibility for importing, purchasing, manufacturing, or otherwise obtaining supplies of rubber, synthetic or natural, to meet the requirements of the country during the war rests with Rubber Reserve Company.

As stated above, our plans for the production of Butyl Rubber and/or Vistanex are limited to the initial commercial unit of 20 tons per day, involving an investment of \$4,500,000. This investment and production, added to our other investments and production of synthetic rubber and raw materials therefor, will raise our total commercial investment in this field, financed entirely by ourselves, to approximately \$12,000,000; and our total production to approximately 19,000 short tons per annum.

We trust the above, supplementing your information from other sources, will give you all data on Vistanex and Butyl Rubber which Rubber Reserves requires in its consideration of the general rubber supply problem, and we assume you will advise us if you wish anything further.

Very truly yours,

FRANK A. HOWARD.

FAH:MF

cc R. W. Gallagher, W. C. Asbury, M. B. Hopkins, H. W. Fisher, R. P. R., E. V. M.

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#### EXHIBIT No. 396

OCTOBER 20th, 1939.

Mr. F. A. HOWARD,

*Building.*

DEAR MR. HOWARD: You asked about the amount of technical information available on manufacture of Buna rubber. Excepting information Mr. Murphree was able to get when he went through an I. G. plant eight years ago, the only knowledge our people have is derived from published patents. At the time of Mr. Murphree's visit, the old sodium polymerization process was in favor but a

plant using the at-present-favored emulsion process for making Buna-N and Buna-S was in operation. The process did not appear to be tricky or to present many difficulties from an engineering standpoint. It is not possible, however, to determine in advance what difficulties will be encountered until the process is carried out on a laboratory and a pilot plant scale.

The operation of the polymerization process itself seems to be less of a problem than the obtaining of raw materials. For this reason manufacture of Buna-N, in the limited quantities required for specialty outlets, presents less problems than manufacture of Buna-S, which is of interest only if it can be made on a relatively large scale. Acrylic nitrile for Bun-N can probably be purchased in quantities sufficient to take care of a plant of economical size, whereas a plant to make Buna-S would require such a large quantity of styrene as to make it necessary to either develop and put in a styrene process ourselves, or arrange for another supplier, such as Dow. With either process, it is, of course, necessary to have a supply of butadiene. Since a butadiene supply is also necessary for butyl rubber, the Chemical Laboratories are devoting much of their time to studying the processes for producing butadiene. Other butadiene supplies, such as that of United Gas Improvement, are being considered, but a supply which does not leave us in the hands of outsiders is highly desirable.

A synthetic rubber enterprise would be either

(1) A slow development which at the outset would produce a quantity of high-priced specialty product for the market and also large-size samples for test purposes in all fields where rubber is used. As the tests of samples prove their value for new uses, plant additions can be made to increase supplies. By this method at least four or five years may be required before arriving at a position of importance in the rubber business. In the early stages, rubber would not be produced for automobile tires, or

(2) A rush development to supply the country with rubber either to meet an emergency or to put the country in a position where it does not depend, even in peacetimes, upon crude rubber imports. This requires a synthetic product suitable for automotive equipment.

For (1) Buna-N or butyl rubber or both could be manufactured with considerable assurance of market acceptance in the specialty field. For (2) a choice must be made between Buna-S and butyl rubber. In favor of Buna-S is

(a) the knowledge that Germany is using the product for tires, and slight element of doubt that butyl rubber will be suitable;

(b) the tests by U. S. tire manufacturers put the Buna-S ahead of butyl rubber. Against Buna-S is

(a) higher cost;

(b) raw materials more difficult to supply;

(c) longer period of time would be required to develop the art of producing and just as long a time to develop the art of compounding for tires;

(d) other things being equal, American development is to be preferred.

As you know, butyl rubber is going into the pilot plant stage and plans are being made to study the Buna-N process in the laboratory. This work must be carried further before it is possible to plan further ahead and make a choice between the two methods of further development. I recommend that the project continue along exactly the same lines as have now been laid out until the suitability of butyl rubber for tires can be determined. I believe, however, that the whole synthetic rubber effort could be accelerated by an increase in technical personnel to carry it along. There is undoubtedly in each department a shortage of men to advance the project as rapidly as is justified by its promising possibilities. The time is so very ripe for a replacement of natural rubber by synthetic rubber in the United States as to make the cost of such an increase insignificant in comparison with the importance of getting on a commercial basis ahead of the others who are known to be working in the field.

Very truly yours,

MBH:GD

CC: Mr. R. P. Russell

Mr. E. V. Murphree

Mr. H. W. Fisher

## EXHIBIT No. 397

## MEMORANDUM—AVAILABILITY OF ISOBUTYLENE AT MAJOR U. S. REFINERIES AND POTENTIAL BUTYL RUBBER PRODUCTION, January 16, 1942

DD—581 x 563

A rough estimate of the isobutylene production and the potential butyl rubber production at the major U. S. refineries has been made and is shown on the attached table. The survey includes all but a few refineries in the U. S. having crude capacities of 25,000 B/D or more each. The refineries have been listed and grouped in accordance with their geographical location, as it is conceivable that large butyl rubber plants might be centrally located to serve sources of isobutylene supply.

Estimates of the isobutylene production have been made both on the basis of crude-oil capacity of each refinery and the cracking capacity, by applying an average percentage yield of isobutylene in each case, as follows:

## CRUDE OIL CAPACITY BASIS

The estimated total butylene production in the U. S. for the year 1940 was 47,100 B/D (letter and memorandum from E. D. Reeves to E. V. Murphree, December 5, 1941). Taking the 1940 crude runs in the U. S. as 3,600,000 B/D and assuming that  $\frac{1}{3}$  of the butylenes are isobutylene, the average yield of isobutylenes on crude was calculated to be:

$$47,100 \times \frac{1}{3} \times \frac{1}{3,600,000} \times 100 = 0.435\%$$

## CRACKING CAPACITY BASIS

As given in the Research Division memorandum of November 21, 1941 (see reference above), an average yield of 13% total  $C_4$  fraction on cracked naphtha produced, of which 45% is butylenes, was used. Again assuming that  $\frac{1}{3}$  of the butylenes are isobutylene, the average yield of isobutylene on cracked naphtha was calculated to be:

$$0.13 \times 0.45 \times \frac{1}{3} \times 100 = 1.95\%$$

The crude oil capacity and cracking capacity, the latter expressed in terms of cracked gasoline, for each refinery was taken from the Bureau of Mines Circular 7161, dated April 1941. Capacity shut down and under construction was included since it is desired to indicate potential production of isobutylene.

Potential butyl rubber production was figured on the basis that all of the estimated isobutylene production would go into rubber manufacture. For lack of information, no attempt is made here to allow for the large expansion in alkylate production which has been planned as a result of the war. The polymerization and alkylation capacities as of the beginning of 1941 are shown for each refinery to give an indication of the amount of isobutylene that might be consumed for aviation gasoline. The butyl rubber quantity assumes a 93% recovery of butylenes, 80% absorption of isobutylene, and 1.06% concentrated isobutylene per pound rubber.

Since unsaturates are produced only from cracking operations, the estimates based on cracking capacity probably give a better indication of isobutylene availability than those based on crude oil capacity. The crude capacity basis when applied to individual refineries is subject to considerable error in those cases where the amount of cracking done is not representative of the average for the U. S. industry as a whole. For example, whereas the average cracked naphtha yield on crude in 1940 was 28.8% for the industry as a whole, many of the refineries listed on the table do not have cracking capacity in the same proportion.

It should be pointed out that the estimates of the butyl rubber production in individual U. S. refineries and localities are merely indicative of the scale of butyl rubber manufacture that might possibly be undertaken. An indication of the reliability of the method used for estimating the isobutylene production can be obtained by comparing the figures obtained for the refineries of the Jersey and affiliated companies with independent estimates made on the basis of more detailed data on plant operations.

G. L. AHRENS.

## Availability of isobutylene &amp; potential butyl rubber production at major U. S. refineries

[Capacity data as of Jan. 1941]

Location and Company	Crude Capacity	Cracked Gasoline Capacity	Polymerization		Alkylate Capacity	Hydrocodimer Capacity	Estimated From Crude Oil Capacity		Estimated From Cracked Gasoline Capacity	
							Isobutylene Production	Potential Butyl Rubber	Isobutylene Production	Potential Butyl Rubber
	B/D 1	B/D 1	Capacity	Type 2	B/D 2	B/D 2	B/D 3	Sh. Tons/D 4	B/D 5	Sh. Tons/D 4
TEXAS										
	Port Arthur:									
	Gulf	130,000	190	Cold Acid			570		740	55
	Texas	135,000	350	Hot Acid		400	500		990	73
			950	U. O. P. (S)		750				
				U. O. P. (NS)			1,160	86	1,730	128
Beaumont Area:										
	Beaumont, Magnolia	100,000					440	33	600	44
	Nederland, Pine Oil	59,000				2,140	260	19	380	28
							700	52	980	72
Borger, Phillips	150,000	50,200	3,100	Thermal		950 Neo. Hex.	150	11	330	24
	35,000	17,000								
Houston:										
	Shell	74,000	100	Hot Acid		1,700	320	24	430	32
	Texas	25,000					110	8	20	1
	Stinclair	60,000					260	19	250	19
							690	51	700	52
Baytown, Humble										
	Texas City, Pan Am	6108,000	710	Hot Acid		2,500 (250)	7730	754	7500	744
	Ingleside, Humble	97,000	3,260	Thermal		(1,000)	420	31	720	53
		30,000	2,240	U. O. P. (NS)			130	10	140	10
CALIFORNIA										
	Richmond Area:									
	Richmond, S. O. Calif	100,000	820	Oxn (S)		1,200	440	33	270	20
	Martinez, Shell	25,500	240	Hot Acid		500	120	9	150	11
	Avon, Tide Water	43,600	800	Thermal		600	190	14	160	12
	Oleum, Union	30,000	160	U. O. P. (NS)			130	10	110	8
		200,100					880	60	690	51



## Availability of isobutylene &amp; potential butyl rubber production at major U. S. refineries—Continued

[Capacity data as of Jan. 1941]

Location and Company	Crude Capacity	Cracked Gasoline Capacity	Polymerization		Alkylate Capacity	Hydro-codimer Capacity	Estimated From Crude Oil Capacity		Estimated From Cracked Gaso. Capacity	
			Capacity	Type 2			Isobutylene Production	Potential Butyl Rubber	Isobutylene Production	Potential Butyl Rubber
PHILADELPHIA AREA continued	B/D 1	B/D 1	B/D 2		B/D 2	B/D 2	B/D 3	Sh. Tons/D 4	R/D 5	Sh. Tons/D 6
	90,000	38,500					390	29	750	56
	45,000	12,000	900		(1000)		200	15	230	17
	25,200	8,000			(400)		110	8	160	12
	290,200	93,500					1,260	94	1,820	135
NORTHERN NEW JERSEY AREA	155,000	631,500	120	Cold Acid			7,670	750	7,020	746
	57,000	8,300	2,000	U. O. P. (NS)			250	18	160	12
	212,000	39,800					920	68	780	58
MASSACHUSETTS										
	32,600	7,700	1,000	U. O. P. (NS)			140	10	150	11
Everett, Colonial Beacon										
MARYLAND										
	27,000	7,300					120	9	140	10
	2,632,200	719,100					11,490	854	13,010	1,038
	2,228,000	432,100					9,200	716	8,410	624
	94,860,200	10,151,200					21,190	1,570	22,420	1,662
Total U. S. Jan. '41										

<sup>1</sup> Total capacity including shut-down equipment January 1, 1941. U. S. Bureau of Mines, Circular 1 C, 7161, April, 1941.<sup>2</sup> T. C. Report, Res. Div. #28, 3/31/41.<sup>3</sup> Polymerization: (NS) indicates "Non-Selective," (S) indicates "selective." Figures in ( ) indicate additional capacity being constructed or contemplated, January '41.<sup>4</sup> 0.455% on crude, 100% recovery.<sup>5</sup> Based on total estimated isobutylene production, 10 tons/day butyl rubber requires 135 B/D isobutylene, assuming 85% recovery of butenes, 80% absorption, and 94.1% wt. yield butyl rubber on isobutylene feed.<sup>6</sup> 1.95% on cracked naphtha, 100% recovery.<sup>7</sup> Includes capacity building Jan. 1941.<sup>8</sup> These figures should not be construed as being the best estimates for these penneries. Detailed figures of greater accuracy are available in these cases.<sup>9</sup> 30-40 miles from Whiting, Ind.<sup>10</sup> Capacity operating Jan. 1941, 4,180,600 B/D.; actual crude run in 1940 3,600,000 B/D.<sup>11</sup> Capacity operating Jan. 1941, 1,021,000 B/D.; actual cracked naphtha, prod. in 1940 805,000 B/D.



*Isobutylene availability at Bayway<sup>1</sup>*

[From H. R. Poland, 1/16/42]

A. NO CAT. CARCEER—REFORMING TO 76 A. S. T. M. 16,300,000 B. P. Y. NAPHTHA

	B/D IC <sub>4</sub> H <sub>10</sub>	B/D nC <sub>4</sub> H <sub>10</sub>	B/D IC <sub>4</sub> H <sub>8</sub>	B/D nC <sub>4</sub> H <sub>8</sub>	B/D Total
Total C <sub>4</sub> 's produced (incl. 1/2 of Lt. P. C. C <sub>4</sub> )	502	2,113	536	1,269	4,420
Recovered @ 95%	477	2,003	510	1,204	4,194
136 B/D crude dimer and trimer			177		
Remaining			333		
Selective poly (use 96% of IC <sub>4</sub> H <sub>8</sub> =405 B/D codimer)			300	240	
Remaining	477	2,003	33	964	3,477
7,700,000 gals/yr. butyl alcohol $\frac{7,700,000}{365} \times \frac{1}{42} = 1.7$				855	

B. AVIATION CAT. CRACKER (3A CAT.)—REFORMING TO 76 A. S. T. M.—16,300,000 B. P. Y. NAPHTHA

	B/D IC <sub>4</sub> H <sub>10</sub>	B/D nC <sub>4</sub> H <sub>10</sub>	B/D IC <sub>4</sub> H <sub>8</sub>	B/D nC <sub>4</sub> H <sub>8</sub>	B/D Total
Total C <sub>4</sub> 's produced (incl. 1/2 Lt. P. C. C <sub>4</sub> )	1,583	2,236	602	1,570	5,991
Recovered @ 95%	1,506	2,121	572	1,491	5,690
136 B/D crude dimer and trimer			177		
Remaining			395		
Selective poly (use 90% of IC <sub>4</sub> H <sub>8</sub> 480 = B/D codimer)			356	284	
Remaining	1,506	2,121	40	1,207	4,874
7,700,000 gals/yr. butyl alcohol				855	

EXHIBIT No. 398

THAMES HOUSE,

Millbank, London, S. W. 1, 15th March, 1938.

Confidential.

Mr. R. P. RUSSELL,

New York.

DEAR BOB: At my meeting with the I. G. gentlemen in Berlin on the Buna question, it developed that very rapid strides were being made in all phases of the Buna development, and there is even a prospect that this development will very soon stand on its own feet economically in competition with natural rubber under manufacturing conditions and costs in the United States. This is not only in the specialty field of high-priced products, but in the main field of tyre manufacture. Certain difficulties still exist which prevent our I. G. friends from giving us full technical information and proceeding in the normal manner with the commercial development in the United States. It is to be hoped that these difficulties will be surmounted in the near future, and we here desire to do everything possible to bring about that result.

In view of the very genuine spirit of cooperation which Dr. ter Meer displayed, I am convinced that it is not only the right thing to do, but the best thing from every standpoint to pass on to them full information on the copolymer at this time. I do not believe we have anything to lose by this which is comparable with the possible benefit to all of our interests.

With best regards, I remain,

Yours very truly,

FRANK A. HOWARD.

FAH/WAG.

<sup>1</sup> This portion of Exhibit No. 397 had been previously introduced as Exhibit No. 393. Two charts which are a part of this exhibit appear supra, facing p. 4620.

## EXHIBIT No. 399

STANDARD OIL DEVELOPMENT COMPANY,  
26 Broadway, New York, June 22, 1939.

Mr. F. A. HOWARD,  
*Building.*

DEAR MR. HOWARD: This will refer to our discussion of June 20 on the subject of copolymer. I have talked this matter over with Messrs. Fisher, Hopkins, and Murphree, and I think we are all agreed on the following:

1. We ought to be working vigorously with a U. S. tire manufacturer to explore the possibilities of application of our various copolymers for applications in the tire business.

2. U. S. Rubber would be the most desirable organization for us to work with.

\* \* \* \* \*

Messrs. Fisher and Hopkins are giving some thought to the kind of an arrangement which should be entered into with U. S. Rubber and will communicate their recommended outline of such a deal to you within the next few days.

Mr. Murphree does not agree with Dr. Frolich's recommendation that Thomas go to Germany since he feels that the efforts of all our personnel are needed locally over the near future, particularly if we do tie up with U. S. Mr. Murphree feels that the question of acquainting the I. G. with our present developments can be handled by sending 50 pounds of our product to Germany together with a complete memorandum outlining the work which has been done on it and the reasons why we believe the product offers promise.

Very truly yours,

R. P. RUSSELL.

RPR: BK.

CC: Mr. H. W. Fisher.

Dr. M. B. Hopkins.

Mr. E. V. Murphree.

[Stamped:] Noted, June 23, 1939, F. A. H.

## EXHIBIT 400

STANDARD OIL DEVELOPMENT COMPANY,  
P. O. Box 243, Elizabeth, N. J., November 21, 1939.

Personal and Confidential.

Dr. M. B. HOPKINS,  
26 Broadway, New York, N. Y.

DEAR DOCTOR HOPKINS: Some time ago we received a rather detailed report on the preliminary work carried out by the Navy's Mare Island Laboratories on the evaluation of the three synthetic rubbers submitted to them, i. e., Buna-S, Perbunan, and butyl rubber. Last week Mr. Werkenthin, of the Navy's Bureau of Construction and Repair in Washington, spent the day with us here at Bayway to discuss the Mare Island Laboratories results, and to get some first-hand information on the compounding and general handling of these synthetic rubbers.

Mr. Werkenthin was particularly interested in ascertaining how far we had proceeded in the development of butyl rubber. He seemed rather favorably impressed by the properties of this product as brought out by the movie and with the work in general, but perhaps he was somewhat disappointed to find that we are not closer to commercial production as he seems to be particularly impressed by the properties of butyl rubber.

Because of the possible application of butyl rubber to some of the Navy's requirements, Mr. Werkenthin had been instructed also to look into the manufacturing process. You will recall that I took up this question with you before his arrival. As agreed upon, I took Mr. Werkenthin over to the "K" Plant, when it appeared that I could not very well steer his interest away from the process. However, I am quite certain that he left with no picture of the operations other than that a considerable amount of distillation and refrigeration is involved in the handling of the light hydrocarbons, and that refinery gas rather than straight butadiene is the raw material.

We will continue our active contact with the Navy as far as the development of uses for Perbunan and butyl rubber are concerned, but no further work will

be done on Buna-S. At the request of the Navy's Bureau of Construction and Repair, we are sending an additional fifty pounds of Perbunan and twenty-five pounds of butyl rubber to the Mare Island Laboratories.

The Navy's report as well as the points brought up at the time of Mr. Werkenthin's visit are discussed in further detail in the attached memorandum by Mr. Lightbown.

I trust that you will call to Mr. Howard's attention any phase of this that you think may be of interest to him.

Very truly yours,

PER K. FROLICH,  
*Chemical Laboratories.*

PKF: hf.

Memorandum.

c. c.: Messrs. E. V. Murphree.

H. W. Fisher.

NOVEMBER 20, 1939.

MEMORANDUM IN CONNECTION WITH REPORT JJ 33/L5 (34-330415) OF SEPTEMBER 11, 1939, AND WITH MR. WERKENTHIN'S VISIT OF NOVEMBER 16, 1939, CONCERNING THE APPLICATION OF BUTYL RUBBER AND BUNA-N

Confidential report JJ 33/L5 (34-330415) concerns tests made at Mare Island, California, on "Product X" (butyl rubber), "Product N" (Perbunan), and "Product S" (Buna-S).

Since Buna-S was found to be unsatisfactory for the prescribed use, and because at the present time we know very little about its characteristics, comment will be restricted to Buna-N and butyl rubber.

The report's criticism of both butyl rubber and Buna-N was restricted in both cases almost exclusively to the processing characteristics and not to the properties of the finished article. This is, of course, to be expected when standard machinery and established techniques are applied to a new product.

Butyl rubber is tougher and more "nervy" than natural rubber, and although, as the report states, it takes up the pigments faster, this toughness remains even after prolonged milling. This is an intrinsic characteristic of butyl rubber, but one which may be slightly modified by running the batch a little warmer than usual on the mill.

Mare Island butyl rubber compound E-18-1 was found to have excellent electrical properties for wire insulation, coupled with unusual age resistance after 5 hours in an air bomb at 80 pounds per square inch and 260° F. temperature (the results show the tensile strength to have actually increased after aging), but the 200% modulus and the permanent set were below specifications, while the ultimate tensile strength was not taken because the samples, elongating more than rubber, stretched to the full length of the Olsen testing machine without breaking. The matter of tensile strength and sample breaking can be taken care of by slightly modifying the shape of the sample. Compounded E-18-1 with very slight modifications, prepared in our laboratory, had a tensile strength of 2,700 pounds per square inch and an elongation of 975%. In comparison with this the Navy specifications call for a 1,509 pounds per square inch minimum tensile and an elongation of at least 400%. The 200% modulus specifications are written especially for rubber compositions. Butyl rubber has a much lower modulus (stress) up to about 600%, and this is an intrinsic property of the material just as high modulus is an intrinsic property of natural rubber, but in neither case does the modulus make much difference in actual application. Permanent set, although probably falling in the same category as modulus, may necessitate some slight compounding adjustments.

These differences in the characteristics and variations in the processing of butyl rubber in comparison with natural rubber were brought out in a written reply (November 13, 1939) to the Navy report and were discussed during our conversation with Mr. Werkenthin. The processing of Perbunan was also discussed. The Navy report considered Perbunan as satisfactory except that it was difficult to mill. This was discussed in the reply mentioned above and Mr. Werkenthin was shown in our laboratory what is considered the best method to follow.

Concerning butyl rubber, Mr. Werkenthin spoke of the following possible uses:

1. *Insulation.*—We will be sent the specifications and if possible we will make up a few lengths of wire which will be tested by the Navy.

2. *Warship deck mats*.—Mr. Werkenthin will send us a sample of a natural rubber deck mat along with the physical specifications. These mats are cemented to the steel deck with an ordinary rubber cement. They are exposed to unusual conditions. According to Mr. Werkenthin, their life is about a year and a half. They can be quite easily tested and it may be advisable for us to get a small mold to make a section about 12" x 24" in our own press.

3. *Acid-resistant lining*.—Submarine battery rooms are entirely lined with soft rubber to protect the steel portions against attack by splashing acid. For such a use, butyl rubber should have excellent properties. Since butyl rubber is more difficult to vulcanize than natural rubber and because we know very little about adhesion to metals, this application would probably require considerable work.

4. *Picking tank lining*.—Comments on this use would be the same as for battery room walls.

It was Mr. Werkenthin's opinion that butyl rubber might find wider application if it were first tested in special uses such as deck mats, etc. These special uses would permit of more thorough testing, the results of which might well lead to a better understanding of the more general applications.

I. E. LIGHTBOWN,  
Chemical Laboratories.

IEL: hf

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EXHIBIT No. 401

STANDARD OIL DEVELOPMENT COMPANY,  
Washington, D. C., July 24, 1940.

Mr. H. W. FISHER,  
26 Broadway, New York City.

DEAR BUD: Mr. Reed, Chairman of General Electric, called me on the telephone in Washington today to advise that they are ready to accept our letter agreement on butyl rubber in the same form it has been accepted by Firestone. Mr. Reed pointed out that Firestone had a three-month headstart over the industry in general, whereas General Electric would have only about six or seven weeks, if we actually release samples broadcast on September 15th. I told him that I did not know what we would actually do in this connection. Pressure might require us to deliver the samples broadcast as early as September 15th, but if we had our own way, we would probably delay general distribution still further.

I telephoned my office to have Mr. Murphree or Dr. Frolich telephone to Dr. Coolidge immediately and arrange for whatever samples Dr. Coolidge wanted, so as to avoid any unnecessary delay.

Very truly yours,

F. A. HOWARD.

FAH/fb.

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EXHIBIT No. 402

JANUARY 5, 1942.

To: Mr. H. W. FISHER, 26 Broadway.  
From: Mr. R. P. Russell, 30 Rockefeller Plaza.  
Subject: Butyl Rubber, Indiana.

Mr. W. B. Plummer called on December 31 to state that Indiana had been experimenting on a small scale and was just in process of experimenting on a somewhat larger scale with an operation which gave a material which according to theory at least should resemble butyl rubber. He asked whether we could provide Indiana with instructions for compounding, curing, and testing butyl rubber so that Indiana might carry out the same procedure on their new product and compare it with butyl.

I told Mr. Plummer that it was my understanding that it would be a violation of some of our agreements for us to release such information to Indiana, and suggested that in case he did not wish to send a sample of his material to us for testing that he might submit it to Firestone, U. S., or Acushnet. Mr. Plummer stated that he preferred not to give any samples to anyone at this time, and asked

whether we would be willing to send him a pound or two of butyl rubber. I told him I was sure we would be willing to do so, and if you agree that this procedure is in order, will you please send him some?

RPR: BK.

CC: Mr. F. A. Howard.

Dr. M. B. Hopkins.

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EXHIBIT 403

JANUARY 13, 1942.

Butyl Rubber—Indiana.

Mr. R. P. RUSSELL, *Building.*

DEAR SIR: I have 'phoned Mr. Plummer and have told him that our contract obligations applied to samples of butyl as well as to information. Further that although we were no longer obligated not to give samples to others, we have made a uniform policy of not doing so and hence, would prefer not to give one to him at the present time. Mr. Plummer stated that this would not inconvenience them appreciably since they had made arrangements to have their product tested by Naugatuck anyway and Indiana really did not need a sample of butyl.

Very truly yours,

H. W. FISHER.

HWF: MG.

cc. Mr. F. A. Howard.

Dr. M. B. Hopkins.

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EXHIBIT 404

[Copy]

DECEMBER 9, 1940.

MEMORANDUM TO D. L. HARPER

Referring to your note of November 28th, please advise the Pirelli Company that the rights for Butyl Rubber for Italy are held by the I. G. Farbenindustrie, A. G. of Germany. I cabled the I. G. regarding this inquiry as per the attached.

FRANK A. HOWARD.

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[Cable]

DEC. 9, 1940.

IGESEKRETARIAT, *Berlin, Germany:*

FOR TERMER. Pirelli Company have inquired of us about butyl rubber we referred them to you.

DRAWOHAF.

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EXHIBIT No. 405

MEMORANDUM—RUBBER

NOVEMBER 6, 1939.

The situation with relation to Buna in the United States is as follows:

The Advance Solvents Corporation, which has been importing the I. G. Buna (Buna-N), still has a small stock on hand but is not able to obtain any more supplies from Germany. It is quite apparent that a good market exists here. The Company which is taking the largest quantities, the Goodrich Rubber Co., has applied for a license to manufacture the product. They have definitely stated that they do not need any technique from Germany, but require only a bare patent license—and that if refused a license, they are going to proceed anyway with alternative processes which they think will be non-infringing.

A year ago the Goodyear and Dow companies made an application to the I. G. and ourselves for an exclusive license for Buna-N (the high-priced specialty rubber) for the United States. No final answer was given, but it seemed quite apparent that they could not obtain the exclusive license they wanted.

What they have done since we have not yet been able to find out. The U. S. Rubber Co. have consistently displayed an active interest in Buna-N.

The tests of the Buna-S (the tire rubber) have been under way in the U. S. throughout the summer by Goodyear, Goodrich, Firestone and U. S. Rubber. None of the companies has been able to substantiate completely the I. G. claim of a 30% increase in mileage, but apparently all of them (save Goodyear) have obtained some definite increase in mileage, and they all recognize the product as superior to present tread rubber in wearing qualities. They also seem confident that with more experience in the handling and compounding of the product with American materials they can improve present results. The Goodrich Company has made a definite statement that they would expect themselves to provide an outlet for approximately 100 to 200 tons per day of the Buna-S, if it could be supplied to them at a price of 25¢.

A plant for the production of 70 tons per day might represent an investment of the order of \$15,000,000 and without going into detail it is sufficient to say that in view of our lack of technical knowledge of many of the details of manufacture, and in view of the indicated limit on the maximum return which could be expected on the capital investment at any such price as 25¢, the prospects for manufacture of Buna-S on a commercial scale and on a self-supporting basis at this moment are not good. The only thing which could change this situation would be a higher valuation of the premium which can be paid for Buna-S over natural rubber. Such a higher valuation appears to depend upon further compounding experiments and further tests, which will require some time.

We have assumed to the I. G. the obligation to discuss with the duPont Company the entire situation before deciding on our policy here, and these discussions will take place very soon.

As mentioned in an earlier memorandum, we are also obligated to pass to the Munitions Board the experience of the American rubber companies and a rough statement of the cost and commercial prospects of this business.

Our own butyl rubber development is being pushed aggressively in our own laboratories, but without outside cooperation up to this time. The only outside contact we have had on butyl rubber has been with the Munitions Board, through whom we have had contact with the technicians of the Army and Navy concerning possible special uses of butyl rubber in munitions. There is a considerable temptation to publicize this butyl rubber development and to seek contact with the rubber companies on it immediately, but a sounder policy apparently is to confine the development to our own organization up to the point of standardized operation of our pilot plant about next January or February. This will give us an opportunity to feel out the whole synthetic rubber situation in the United States with the duPont company and with the four leading American rubber manufacturers through our contacts with them on the Buna matter. The additional time is also desirable from a patent standpoint.

FRANK A. HOWARD.

FAH:MF.

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EXHIBIT No. 406

MARCH 7, 1940.

Mr. A. C. MINTON,  
30 Rockefeller Plaza.

DEAR MR. MINTON: We received yesterday from the Firestone Company executed copy of the form of license which we submitted to the four leading rubber companies some time ago. The Firestone Company have made several changes which are now being carefully checked, but which all appear to be minor. If further checking does not change the present conclusion we are therefore in position to complete this transaction by signing the license ourselves.

We of the Development Group believe this is the correct thing to do since in this way we will have broken down the solid front which the Goodyear and Goodrich companies have been trying to get the rubber people to make against our license plan.

If the Committee should agree with this conclusion we would have as a second question whether we should try to use the Firestone agreement to force immediate acceptance of our license by the other companies, or whether we should take the opposite tack and stiffen our position vis-a-vis the other companies, with the thought that we really do not want to make any more licenses.

A third possibility is that, with the additional strength gained by the Firestone license, and with our own definite plans to proceed now fairly well worked

out, we might now propose to the four leading rubber companies that they join with us in a joint plant.

I believe we are far enough advanced with our butyl rubber development so that we could now bring this into the discussions, although our natural course would be to hold off some time longer on any disclosure of butyl rubber.

I should like to come to the Committee on Friday morning to obtain advice on the foregoing matters, and it may be that you will wish to circulate this memorandum in advance of the meeting.

Very truly yours,

FRANK A. HOWARD.

FAH:MF  
ccMBH

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EXHIBIT No. 407

[Copy]

JUNE 13, 1940.

Mr. F. H. BEDFORD, Jr.,  
*Building.*

DEAR FRED: The developments in the Butyl rubber may be summarized as follows:

(1) We have entered into an agreement with Firestone as per the annexed letter, dated June 6, 1940. They are now proceeding as fast as possible in the development work on tires from Butyl rubber and are very enthusiastic.

(2) We have made an agreement in principle with U. S. Rubber, as represented by the attached draft letter, which Mr. Davis stated was satisfactory to him but which, for the sake of form, he desired to get approved by his Executive Committee. We felt that our relations with U. S. Rubber justified our proceeding with immediate cooperation under the circumstances. We expect to have the signed letter back within another day or two.

(3) I have written Mr. Stettinius on this matter as per the attached, dated June 11th.

(4) Mr. Viles of the Rubber Manufacturing Association has sent me a copy of his report to Mr. Stettinius, annexed, and I have replied to his letter and written Mr. Stettinius on the same matter, indicating our disagreement with Mr. Viles' conclusion.

(5) Mr. Farish has asked me to come to Washington with him tonight to be present at the Senate Military Affairs Committee session Friday at which the synthetic rubber picture in the United States will be under inquiry.

(6) Bob Vanderbilt asked me for a sample of butyl rubber for test work. As you will have noted from the agreements with Firestone and U. S. Rubber, it has been decided that it is not wise for us to put out samples before September 15. This is for the purpose of giving our company, in association with Firestone and U. S. Rubber, a further opportunity to protect ourselves patentwise.

There is no doubt that when butyl rubber samples are released there will be a flood of patent applications by independent persons, seeking to cover various methods of compounding and using butyl rubber. These patents are going to be a nuisance and a burden to us and we would like to minimize this as far as possible.

Very truly yours,

FRANK A. HOWARD.

FAH:MF  
Encls.

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EXHIBIT No. 408

JUNE 4, 1940.

Mr. J. W. THOMAS,  
*President, Firestone Tire & Rubber Company,  
Akron, Ohio.*

DEAR MR. THOMAS: This will confirm our telephone conversation yesterday, and my subsequent conversation with Mr. Trainer. We are looking forward with pleasure to a visit of your gentlemen with us here on Thursday. I enclose text of the statement which Mr. Farish made at the Standard Oil Company (New Jersey) stockholders' meeting today. It is difficult to tell what the

newspapers will do to it, but at any rate, this is all we are responsible for. You will note that I followed Mr. Trainer's suggestion by asking Mr. Farish in this statement to refer to the existing cooperation between Firestone and ourselves.

I have just received a call from Mr. A. L. Viles (\*) in which he informed me that he has undertaken to prepare for Mr. Stettinius within the next few days, a complete review of the rubber industry's position from a raw material standpoint, covering both the natural and the synthetic rubber position. We have previously had several contacts with the Munitions Board on this same matter, and Dr. Hopkins is endeavoring to get out for Mr. Viles the best forecast we can make on the statistical possibilities of the Buna and Butyl synthetic rubbers.

From the standpoint of very large production within the shortest possible time, Butyl rubber is especially important. Not only as a commercial matter, but because of its bearing on the national supply problems, we ought therefore to move as rapidly as we possibly can in the experimental application of Butyl rubber in tire manufacture. In view of this, we hope to avoid the necessity for negotiations of any formal contracts between your company and ours and proceed to cooperate on the simplest possible basis, confirmed only by letter following the visit of your people.

I very much appreciate your prompt action in arranging for the first visit and discussion.

Very truly yours,

FAH: MF  
encl.

FRANK A. HOWARD.

(\*) President of Rubber Manufacturers' Association.  
cc: Mr. W. S. Farish,  
cc: MBH  
HWF

JUNE 4, 1940.

It was announced some time ago that we had taken over the interest of the I. G. Farbenindustrie, A. G., originators of the German synthetic rubber BUNA, in this product for the United States, that we are ourselves preparing to manufacture it, and have licensed the Firestone Tire & Rubber Company, with whom we are cooperating in the commercial development. You may also be interested to know that our Standard Oil Development Company has discovered in its own research laboratories another synthetic rubber product, which we call "Butyl Rubber." The Butyl Rubber is made from petroleum by processes more direct and simple than those required for the production of Buna rubber, and should be appreciably lower in cost. The German product was originally produced from limestone and coal, which were the cheap raw materials for Germany, and while in our own Buna Plant now building at Baton Rouge it will be produced from oil, the process involves several steps. The Butyl Rubber is more nearly a straight petroleum product and although its manufacture involves the most advanced technology, we have solved successfully the primary production problems and already have in operation a semi-commercial pilot plant at our Esso Laboratories in Bayway.

The Buna rubber is in demand at the present time in the United States exclusively for the manufacture of special rubber products such as gasoline hose, where the unique property of Buna in resisting the action of oil is important. The Butyl Rubber is not an oil-resistant product and will therefore not be in direct competition with Buna for the Buna specialty markets. The Butyl Rubber has, however, special properties of its own which make it superior to natural rubber for many uses.

As in the case of the Buna rubber, the commercial development of the Butyl rubber will be in stages, the first stage being the manufacture of relatively small quantities for the specialty market and for commercial testing in tire production. Should it become necessary for the United States to produce synthetic rubber in substitution for a major proportion of imported natural rubber, we are in a position to manufacture the Butyl Rubber from petroleum in any required quantities as rapidly as the necessary plant facilities can be installed.

FAH: MF  
cc: Messrs. J. W. Thomas, Firestone.  
N. Clarey.  
R. P. Russell.  
M. B. Hopkins.  
H. W. Fisher.



## EXHIBIT No. 409

ESSO LABORATORIES,  
P. O. Box 243, Elizabeth, N. J., February 4, 1941.

Mr. P. L. YOUNG.

26 Broadway, New York, N. Y.

DEAR MR. YOUNG: In accordance with your request, I am giving you the following list of companies with whom we are cooperating in the butyl rubber development, and also the names of the individuals through whom our technical contacts are made. I am also indicating what I believe the positions of these men are within their respective organizations:

The Firestone Tire and Rubber Company, Dr. J. N. Street, Director of Organic Research; U. S. Rubber Company, Dr. W. A. Gibbons, Director of Research; General Electric Company, Dr. A. L. Marshall, In charge of chemical research; Acushnet Process Company, Mr. Philip T. Gidley, Development Engineer; United Carbon Company, Dr. H. W. Grote, Dr. I. Drogin, Director of Research.

In the case of the U. S. Rubber Company we also maintain direct contacts with the development managers of a number of branches in different localities, but I would make the assumption that these gentlemen could be considered directly responsible to Dr. Gibbons concerning the butyl rubber activities.

As far as I can recall, the only other samples of butyl rubber that have been sent out from here have gone to Professor Urey at Columbia University for use on a confidential Navy project; and to Dr. T. P. Sager of the National Bureau of Standards who is carrying out studies on materials for the impregnation of balloon cloth.

On Buna rubbers we are cooperating actively with Firestone and U. S. Rubber—the same individuals being involved as shown above for butyl rubber.

There is a distinction between the type of cooperation in which we are engaged in these two fields. In the case of butyl rubber, the joint programs aim at developing outlets for products which are being manufactured by us, and very little information is given out on the manufacturing process involved. In the case of Buna, however, the two companies mentioned above are licensees under our I. G. patents as well as such additional patents as may be taken out on the basis of our own work. In general, we are therefore making available to the responsible technical heads of these two companies all information pertaining to the manufacture of the products involved.

Although restrictions so far have been placed on our butyl rubber applications, it is my suggestion that we treat all our synthetic rubber work alike—considering that the same action undoubtedly will be taken by the Patent Office on future applications dealing with Buna as well as on any other modifications.

Very truly yours,

PER K. FROLICH.

PKF:HF

c. c.: Messrs. M. B. Hopkins.  
H. W. Fisher.

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EXHIBIT No. 410

MAY 21, 1941.

HL-17

Mr. W. R. CARLISLE,

36, Queen Anne's Gate, Westminster, London, S. W. 1

DEAR MR. CARLISLE: Please refer to your letter of May 6, 1941, addressed to Mr. F. A. Howard regarding your letter of December 16, 1940. This letter was received and I replied in my letter of April 2, 1941. Apparently this letter did not reach you and I am attaching a copy together with a copy of the correspondence referred to therein.

There has been no subsequent change in the Butyl rubber situation except that plans are going forward to build a commercial plant in the United States. At the present time the Butyl rubber pilot plant is continuing to operate to supply material for experiments in utilization and to improve the process. We are cooperating with six outside companies on programs of Butyl rubber utilization.

In Mr. H. W. Fisher's letter of March 10, 1941, he expressed a desire to continue working through F. A. Hughes & Company at least until the war is over. We have not yet made Butyl rubber samples available to manufacturers generally in the United States and for this reason, as well as because of the local need

for current production, I am sorry that we cannot supply F. A. Hughes & Company with samples for experimental purposes.

We would like to maintain the interest of F. A. Hughes & Company until a conclusion can be arrived at as to a possible partner in England in the rubber development but realize that this may be difficult under the circumstances. Will you kindly let us know if you consider there is any other course we should follow.

Very truly yours,

M. B. HOPKINS.

MBH:GD

CC: Mr. H. W. Fisher

EXHIBIT No. 411

NOVEMBER 18, 1940.

#### MEMORANDUM FOR HUMBLE ON CHEMICAL MANUFACTURING LICENSES

In connection with the contemplated manufacture of butyl rubber, the question was raised with the Humble company as to whether they would be interested in embarking in this new field. The Humble Board considered the matter, discussed it with their counsel, and advised that they would be interested but that they could enter this field only on a completely independent basis, that is, without agreements which would limit their rights of manufacture or sale of the products. This position was understood to have been taken by Humble counsel on the assumption that Humble had an unlimited license under the Mutualization Contracts with Standard Oil Development Co. to proceed with butyl rubber and that it was therefore unreasonable for Humble to be expected to restrict its activities in this field, if it chose to enter the new field voluntarily with an investment of its own capital.

The case was distinguished from the Product Sales arrangement in two particulars. In the first instance, Humble had already made its investments in refining facilities in large excess over its own natural market or requirement; and in the second instance, Humble was not required by the Process Agreement to assume any definite obligations as regards limitations of its sales to others.

While the validity of these distinctions is quite clear it is believed that the points are immaterial, because Humble is not, in fact, free to proceed independently with the butyl rubber development under the Mutualization Contract. The reason Humble cannot proceed under this contract is because Humble, along with all other Mutual Companies, consented to, and has for 11 years worked under and adopted, all the burdens and benefits of the 1929 agreement between Jersey and I. G. By this agreement Jersey acquired, for the benefit of the Mutual Companies, among other things, an interest in the chemical developments of I. G. based upon oil and gas as raw materials, and in return assumed the obligation to give the I. G. an interest in its own developments in the same chemical field. The language of the 1929 agreement on this point is:

"If the company (Standard Oil Co. (N. J.)) shall desire to initiate anywhere in the world a new chemical development, not closely related to its then business, it will offer to I. G. control of such new enterprise (including the patent rights thereto) on fair and reasonable terms."

The reciprocal clause reads:

"If I. G. shall desire to initiate outside of Germany a new chemical development which cannot be advantageously carried on except as a department of an oil or natural gas business, it will offer control thereof (including the patent rights thereto) to the Company on fair and reasonable terms."

The above obligations, assumed under the I. G.-Jersey agreement of 1929, were binding upon Development, because it is a 100% Jersey subsidiary, and all such subsidiaries of both parties were bound by the agreement. Pursuant to the understanding of the parties, this general agreement relating to the chemical field arrived at in connection with the hydrogenation agreement in 1929, was confirmed and amplified, and the exact mechanism for its operation was worked out, in a supplementary agreement executed the following year. The supplementary agreement, known as the Jasco agreement, was a direct agreement between Development and I. G. Humble was advised of it at the time and has been generally conversant with its operations throughout the following 10-year period.

Under the Jasco agreement the corporation "Jasco" (jointly owned by I. G. and Development) undertook the development and exploitation of the patent rights of both parties coming within this border-line field of manufacture of

chemical products using oil and gas as raw materials. All licensing rights of both parties for processes in the border-line field were placed in the hands of Jasco and Jasco assumed the obligation to exploit these patent rights by manufacture or licensing (but in general by licensing) for the best interests of both parties.

The manufacture from oil and gas as raw materials of synthetic rubber was specifically understood by both parties to come within the field of the Jasco arrangement. By the operation of the I. G.-Jersey agreement referred to and the supplementary Jasco agreement therefore Development divested itself of its right to license Humble or others under its patent rights in the field in question and merged these patent rights with those of the I. G. in a new joint enterprise.

While as a result of the foregoing Humble lost the right which it had previously enjoyed of using processes in this field originating with Development, it gained through the merger of these processes with those of the I. G. in a new joint-interest venture. In those cases in which Humble was in the most advantageous position economically to employ the processes, it could expect to receive licenses not only under Development's patents but under the I. G. patents as well; and in any case it would be bound to receive through the Mutual Plan the full benefits of all of Development's earnings from Jasco.

In September of 1939 the Jasco agreement between Development and I. G. was revised, but the revision does not affect the position of Humble. Jasco is still left with the right and obligation to exploit all the processes referred to originating with I. G. and Development by the granting of appropriate licenses to return the maximum profit from the patent rights.

In view of the foregoing it seems clear that Humble has no license under either the I. G. or Development patents for the manufacture of synthetic rubber, unless and until it acquires such a license by negotiations with Jasco. The position of Jasco is that it is entirely willing to grant to Humble a right to manufacture synthetic rubbers under any of its processes, and on entirely reasonable terms; but these terms must include, in addition to a fair royalty, such provision for the sale of the products as will result in the business as a whole returning the maximum profit to Jasco.

In the opinion of Jasco this condition requires that, for the present, any synthetic rubber products manufactured by Humble for general sale should be sold, not in competition with, but in coordination with, the sales by other Jasco licensees. Under the U. S. patent and antitrust law as it now stands, the right of Jasco to attempt to fix sales prices or conditions is extremely circumscribed, and to meet the necessities of this situation Jasco proposes to confine general outside sales to a single agent, with whom it will make direct agreements. This policy is not in any way a discrimination against the Humble Company, but is a uniform Jasco policy, which it has already carried into effect by a formal agreement with Firestone and letter agreement with the U. S. Rubber Co.

It is hoped that in view of the foregoing the Humble company will find it possible to obtain the consent of its lawyers to the acceptance of chemical license contracts from Jasco containing suitable lawful restrictions upon the sales of the patented products.

FRANK A. HOWARD.

FAH:MF

EXHIBIT No. 412

[Incoming message]

OCTOBER 16, 1939.

Mr. H. W. FISHER.  
RC5 NH PR 487.  
Berlin 116 16 1719.  
LC STANDEVEL, New York.

For Howard as agreed we will assign Buna patents for Jasco field stop Documents are being prepared and will include following processes first various processes for the production of butadiene second polymerisation of butadiene and production of copolymers with styrene and acrylonitril third finishing of crude polymers to commercial buna fourth production of monomeric styrene and acrylonitril as components for the production of butadiene copolymers stop Referring to your question with respect to technical information about buna we have to inform you that under present conditions we will not be able to give such information stop As discussed between us we ask you to approach Wilmington before starting to exploit buna patents.

ANILINFABRIK.

## EXHIBIT No. 413

## MEMORANDUM—RUBBER

NOVEMBER 6, 1939.

The situation with relation to Buna in the United States is as follows:

The Advance Solvents Company, which has been importing the I. G. Buna (Buna-N), still has a small stock on hand but is not able to obtain any more supplies from Germany. It is quite apparent that a good market exists here. The company which is taking the largest quantities, the Goodrich Rubber Co., has applied for a license to manufacture the product. They have definitely stated that they do not need any technique from Germany, but require only a bare patent license—and that if refused a license they are going to proceed anyway with alternative processes which they think will be noninfringing.

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The tests of the Buna-S (the tire rubber) have been under way in the U. S. throughout the summer by Goodyear, Goodrich, Firestone and U. S. Rubber. None of the companies has been able to substantiate completely the I. G. claim of a 30% increase in mileage, but apparently all of them (save Goodyear) have obtained some definite increase in mileage, and they all recognize the product as superior to present tread rubber in wearing qualities. They also seem confident that with more experience in the handling and compounding of the product with American materials they can improve present results. The Goodrich Company has made a definite statement that they would expect themselves to provide an outlet for approximately 100 to 200 tons per day of the Buna-S, if it could be supplied to them at a price of 25¢.

A plant for the production of 70 tons per day might represent an investment of the order of \$15,000,000 and without going into detail it is sufficient to say that in view of our lack of technical knowledge of many of the details of manufacture, and in view of the indicated limit on the maximum return which could be expected on the capital investment at any such price as 25¢, the prospects for manufacture of Buna-S on a commercial scale and on a self-supporting basis at this moment are not good. The only thing which could change this situation would be a higher valuation of the premium which can be paid for Buna-S over natural rubber. Such a higher valuation appears to depend upon further compounding experiments and further tests, which will require some time.

We have assumed to the I. G. the obligation to discuss with the du Pont Company the entire situation before deciding on our policy here, and these discussions will take place very soon.

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Our own butyl rubber development is being pushed aggressively in our own laboratories, but without outside cooperation up to this time. The only outside contact we have had on butyl rubber has been with the Munitions Board, through whom we have had contact with the technicians of the Army and Navy concerning possible special uses of butyl rubber in munitions. There is a considerable temptation to publicize this butyl rubber development and to seek contact with the rubber companies on it immediately, but a sounder policy apparently is to confine the development to our own organization up to the point of standardized operation of our pilot plant about next January or February. This will give us an opportunity to feel out the whole synthetic rubber situation in the United States with the du Pont company and with the four leading American rubber manufacturers through our contacts with them on the Buna matter. The additional time is also desirable from a patent standpoint.

FRANK A. HOWARD.

FAH:MF

EXHIBIT No. 414

FROM ROOM No. 2953

Date: Nov. 14, 1939.

To IGESSEKRETARIAT, Berlin, Germany:

Ter Meer Ringer pursuant to my promise have discussed Buna question with du Ponts before talking to others stop Their first position was that they would be willing to consider matter only on basis of exclusive license for straight royalty and even then only if we could not find any other satisfactory method of developing the process here stop They have just advised today, however, that they would like to consider taking a nonexclusive license on any fair basis on which we offer such licenses to others stop We shall continue to keep in contact with them.

FRANK HOWARD.

FAH:MF

cc: Messrs. R. P. Russell  
M. B. Hopkins

EXHIBIT No. 415

FEBRUARY 9, 1928.

Mr. W. C. TEAGLE,  
*Building.*

DEAR MR. TEAGLE: I think you know that the Carbide & Carbon Chemical Co. have a large plant at Clendenin, West Va., for treatment of natural gas for production of synthetic products. They are producing solvents, ethylene glycol (sold in our service stations as an anti-freeze compound under the trade name "Prestone") and propose manufacturing higher alcohols, ethyl benzol, etc.

In the production of higher alcohols they will come into conflict with us on our Melco patents and also in our distribution of these products. Mr. Davidson, Sales Manager of the C. & C. Chemical Company, has been in talking with Dr. Haslam, to see if some manufacturing and marketing agreement could not be had with us. It is Haslam's opinion that the Carbon Co. are seeking to develop whether there are any broad grounds on which a close working agreement between the two companies could be arranged. In the conversation, Davidson has referred repeatedly to our agreement with the I. G. and also to conversations which they themselves have had with I. G., and the further fact that there have been some conversations, if not some agreement, between I. G. and duPonts.

The Union Carbide & Carbon Company, of which the Carbide & Carbon Chemical Company, is a subsidiary, have made this very large investment at Clendenin, and claim to have back of them a 50 years' supply of natural gas. The Hope Natural Gas Company has very large reserves adjoining those of the Carbide Company and it would seem natural that they would look with favor upon having these reserves to back up their very large investments. At the Clendenin plant, they hope to produce from natural gas and benzol, material quantities of ethyl benzol, which is superior to benzol as an antiknock agent, its anti-knock value being about 1.45 times that of benzol.

The petroleum industry is rapidly becoming a chemical industry and has, of course, available to it, the largest supply of raw material, both in its natural gas and the crude oil. Looking to the future, it is evident that the manufacturing and marketing interests of the large refining companies will clash with the large chemical companies. We have our working agreement for the development of the high pressure process with the I. G. and also are indirectly connected with duPont thru the Ethyl Gasoline Corporation. It would seem, therefore, perfectly natural for us to have a close working agreement of some sort with the Union Carbide & Carbon Company, all with the view of the later having the four companies joined together for the development of allied processes and products under agreements, subject to change from year to year as conditions would repair. The Union Carbide & Carbon Company and the duPonts are two of the largest chemical manufacturers in the United States.

A further reason for having some sort of connection with the Union Carbide Company is that it is our understanding they control the supply of chromium. This metal will be the base, possibly, constituting 90% of the catalysts to be used in the development and operation of the high pressure hydrogenation cracking work.

This is a little larger program than I feel our Development Company should attempt to work out. I would be very glad to discuss the matter with you,

having Dr. Halsam present to give us his views. I would like to discuss this before Haslam has his next interview with Davidson, which will probably be the latter end of next week.

Yours very truly,

E. M. CLARK.

# EXHIBIT No. 416

## MEMORANDUM

The suggestion has been made that S and I. G. should join in the manufacture of chemicals such as alcohols, solvents, etc., that may be produced from petroleum and or natural gas. Both companies have been conducting research work along similar lines and S has been producing some of the higher alcohols commercially for several years. I. G. has been producing similar products from coal and exporting same to the U. S. The import tax levied and the probability that it would be made so high as to be prohibitive in protection of U. S. interests has determined I. G. to enter into production in the U. S.

The I. G. engineers visiting the U. S. in March discussed the matter with S and a full disclosure of present manufacture, research and experimental developments, as well as of the patent situation was made to them. Further discussions will be had with them at the coming meeting in Heidelberg.

During the past 3 years the manufacture of synthetic nitrogen and the production of fertilizers has been discussed by I. G. with S. Several surveys have been made by I. G. of the potential markets and the raw material such as natural gas in the Louisiana fields. Tentative plant location has been selected, and preliminary estimates of costs have been made. I. G. have now definitely decided to enter this field and are offering to S a participation in the enterprise with them.

So far as known to S the present activities of I. G. in the U. S. are as follows:

1. Equal partner with S in the commercial development of the high pressure hydrogenation process of treating crude oils and their residues.
2. Contractual affiliation with Sterling products on pharmaceutical supplies.
3. A controlling interest in Grasselli Dye-Stuffs Co. for production of dyes, chemicals, solvents, etc.
4. Manufacture and distribution of photographic films by Agfa Ansco Co.
5. Proposed formation of a company for the manufacture of synthetic nitrogen, fertilizers, chemicals, etc.

To finance and correlate these varied interests the I. G. now proposes to organize in the U. S. a finance corporation with a capital of upwards of \$50,000,000. I. G. will own controlling interest in this corporation, the balance to be sold to partners, investors, or the public. Discussions are now being carried on with N. C. B. on the form and details of this organization, and I. G. expects S to become interested with them in same.

I. G. have said they would not be adverse to including U. C. in a plan for the unification of their activities in the chemical field in the U. S. It is their opinion that a joint enterprise in which their interests were represented by G. and in which S. and U. C. were included in the field of chemicals, solvents, etc., would not be of a monopolistic character and not subject to attack under the antitrust laws. If, however, D. or C. S. were included, it would then control such a large part of the business as to make it subject to investigation by the Federal authorities.

Should S. participate in such a combination or even enter into the manufacture of chemicals and solvents with I. G. alone, it might become embarrassing to S. At present S. is equal partner with G. M. in promoting the use of tetraethyl lead in motor fuels through the Ethyl Gasoline Corporation. The lead product is manufactured under a long-term contract with D. The D. interests own the control of G. M. and therefore largely dictate the policies of the G. M. D. are also important manufacturers of chemicals and large users of solvents, purchased under 10-year contract (1 year cancellation provision) from C. S. D. also has leased a large acreage of potential gas lands in Louisiana, and are presumed to contemplate its development for chemical manufacturing. D. also claim to hold patents for producing hydrogen from natural gas at lowest cost. D. are also large manufacturers of cellulose and of the many specialties of which it is the base.

C. S. is a large manufacturer of chemicals and higher alcohols, solvents, etc. Through contracts with other producers, they have at present a virtual monopoly, and control the commercial supply of solvents, especially for the lacquer and paint trades. C. S. is controlled by the C. P. interests, who are closely connected in various ways with S.

If S. were now to ally itself with I. G. and/or others in the manufacture of chemicals, solvents, etc., it would be competitive with D. and C. S. Such competition on the part of S. in a field entirely apart from the petroleum business (except as crude oil and natural gas may be the raw products) would undoubtedly be resented by D. and C. S. and impair the existing cordial relationship.

This phase of the proposals now under consideration with I. G. was the subject of a discussion with N. C. B. recently. It is believed that for I. G. to enter into these various fields in the United States successfully it must be done in a constructive way and one that will not bring about a competitive condition that would yield no profits, or that would destroy existing United States interests. This can probably be accomplished with the aid of S. and N. C. B., but should be the subject of serious consideration with I. G. before becoming too far committed.

The present activities of I. G. in dye-stuffs and films, and the contemplated extension of same to new products, as well as their proposed paralleling of D. products by the film plant, will be hurtful, and the proposed manufacture of ammonia and fertilizers will be competitive to the business of the Allied Chemical and many other companies. These new activities on the part of the I. G. might bring about a coalition of U. S. interests that would react to the very direct injury of S. if associated with I. G. in such competitive enterprises.

S. desires to be associated with I. G. in every line of manufacture in which the raw products are coal, oil, or gas. S. must, however, carefully weigh the cost to it if such alliance means entering into fields competitive with established U. S. interests that are friendly or with which S. is now associated in other ventures.

S. has been loyally adhering to its contract with I. G. in the development of the oil process in the U. S., realizing that this partnership may disturb the present harmonious relationship in so-called patent club.

Whether S. is justified in further extension of its cooperation and partnership with I. G. in the U. S. into other ventures must be carefully weighed.

The natural question which arises is whether S. would be receiving a fair value in return for what it would give to the partnership. At present S. has only equal rights with I. G. in the development of the oil process in the U. S. If S. were equal partner in the joint development and exploitation of coal and oil throughout the world it would then have sufficient incentive to guarantee lending its influence to the development of business in the chemical and fertilizer fields.

PARIS, June 30th, 1928.

EMC/RDM

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#### EXHIBIT No. 417

NEW YORK, June 21, 1928.

#### I. G. MEMORANDUM

##### 1. Contract to be straightened out.

The proposed amendment to the contract incorporating the changes which have been agreed upon in substance is attached.

In reviewing Dr. von Kuieriem's letter of June 1st, he makes the following points: A. Existing contract puts the plant under I. G. direction, whereas, our proposal puts it under our direction; B. Existing contract provides for full gas-oven equipment, whereas our proposal provides for none. On this point we are modifying the proposal in your letter to Dr. Gaus by including in the proposed contract modification to install at least one commercial-sized gas oven, construction of which is to be begun by September 27, 1929; C. Existing contract gives I. G. the selection of the full 40,000 tons of material to be treated, whereas our proposal gives them the selection of only 24,000.

Although Dr. von Kuieriem raises all of the above points he states that they will be agreeable to the changes which we propose and since we have already agreed to modify the proposals to the extent of putting in the gas oven, which was the most important point, I cannot foresee any reason why there should be

any difficulty in connection with the above. The proposed amendment to the contract, attached, further differs from your letter on which it is based in that we have raised the minimum amount of oil treated from 50,000 to 60,000 tons. This change is made to take care of our obligation to install a gas oven, but since this is also a concession to the I. G. there should be no difficulty.

The only point on which I foresee difficulty is in making clear to Dr. von Knieriem and his associates the royalty situation. Dr. von Knieriem asks the question as to whether royalty will be paid for gasoline produced from sump oven gas oil by regular cracking processes. The answer is obviously "no," but the reason for this will not be clear to the I. G. unless it is explained to them that gas oil is in itself a finished product in the sense that it is freely bought and sold on the market in the exact form in which it would be produced by the sump oven. The 10¢ royalty per barrel of throughput on sump-oven operations is the maximum royalty which we thought could be charged for raising the value of low-grade but, nevertheless, marketable oil, i. e., fuel oils and residues, to oils of higher value, i. e., gas oil and a small percentage of gasoline. No royalty is charged for the products of this operation even though all of them are marketed, and it is, therefore, immaterial whether they be marketed or whether they be subjected to further processes by which identical products on the open market could be converted into products of still higher value.

With regard to the \$134,000 royalty for which we are asking credit for operations of the Baton Rouge experimental plant, this figure was arrived at on the theory that the 40,000 tons of oil to be treated under the original contract would normally have been converted into gasoline bearing royalty at 1¢ per gallon. This is on the basis of 335 gallons of gasoline per ton. The Badische proposal is based on 312½ gallons per ton. In the absence of exact figures as to the weight of the gasoline which would be produced, either one might be accepted as correct, and there is also the factor of the gas loss, which is uncertain. Our figure was made with Dr. Pier and we thought at the time that he assented to it, but we are entirely willing, of course, to accept the Badische figure if they think that is more accurate. It should, of course, be made clear that the alternative suggestion as to royalty included in your letter, was not made by us but was made by Dr. Pier and that we are agreeing with Dr. von Knieriem in thinking that it might be difficult to understand. We have, therefore, dropped it out of the proposed revision of the contract entirely.

2. The technical status and prospects of the coal processes are to be ascertained as fully as possible, and particularly the economic value in these processes of the use of oily products in general, i. e., is there any opportunity or special merit in using in connection with the coal processes residues from oil refining rather than the products made from the hydrogenation of the coal itself?

3. The benzol production from the gas oven to be thoroughly investigated. Apparently by this method the oil is used directly as the source of hydrogen rather than as a consumer of hydrogen. If this is true it is the most important new fact learned about the process as a whole, and might have important application in connection with the production of oil from coal, i. e., petroleum products might be converted into benzol and the surplus hydrogen becoming available, substantially without cost, for the conversion of coal into oil.

4. The commercial aspects of the use of the I. G. process in Germany on the gas oil which they are importing from Texas should be thoroughly looked into in connection with the proposals they are now making for a share in the D. A. P. G., this with the understanding that if the line of earlier negotiations is followed, their share in D. A. P. G. would be dependent upon the proportion of D. A. P. G. products which they supplied. If they can profitably produce gasoline from imported gas oil, they might be able at the Morseburg plant to immediately produce a sufficient amount to entitle them to the maximum percentage of the D. A. P. G. stock. In other words, it would be unfortunate if we made an agreement with them on this matter of D. A. P. G. shares based on the theory that it would be many years before their production from coal gave them any large percentage of the D. A. P. G. and then found out that they could get their maximum share of D. A. P. G. within a year or two by running imported gas oil.

5. The status of the I. G. negotiations and the position of the Shell with relation to this whole matter, will, of course, form one of the most serious subjects of discussion. I am enclosing some miscellaneous data on the London discussions which are all I can think of at the moment to help you on this. Mr. Riedemann



has a complete file of all of the papers exchanged in London and of course accurate knowledge of everything that transpired there.

6. If an opportunity is presented, I should like to obtain both from the I. G. and the D. A. P. G. the facts and figures, particularly the latter, as regards the actual use of "Motalin" (iron carbonyl) in Germany and the plans of the I. G. for the extension of this into other countries. There has been some difficulty in straightening out this iron carbonyl question with the Ethyl Corporation, owing to the fact that both sides had pig-headed patent attorneys on the job. So far as I know, however, there is no longer any controversy on this. There has been some correspondence between Mr. Webb and the I. G. people and myself with relation to the extension of iron carbonyl to other markets. We have tried to discourage the I. G. from doing this except in central Europe. My last report from Webb was that this group here, who are working on an effort to correct the spark plug trouble with iron carbonyl, had some promising leads and felt more hopeful than at any time in the past, but they have reported nothing definite.

7. It seems to me that one of the most serious points for you to consider and perhaps discuss with the I. G., particularly if after your departure some action is taken here by way of a meeting between Mr. Teagle and Mr. duPont, is involved in the chemical question. My analysis of this situation is as follows: At the very outset of our negotiations with the I. G. we had to face the proposition that we were making a far reaching alliance with a foreign company which might tend to alienate us from American interests with whom we have heretofore worked in harmony and to our benefit. Specifically, I had in mind the Patent Club, and the duPont-General Motors group, which, of course, includes the Ethyl Corporation. So far as the Patent Club is concerned we definitely crossed the bridge when we made our initial contract with the I. G. Since then we have had to serve notice on our associates in the cross licensing contracts that we were not free to work with them on hydrogen processes. Although I cannot prove this, I have a distinct feeling that the Texas and Indiana Companies recognize that there is something in our relations with the I. G. which may be seriously prejudicial to them and that they will come to an agreement very quickly for carrying out a cooperative arrangement to try to develop hydrogenation methods in competition with us and the I. G. This cannot be avoided.

The bridge that we have not crossed as yet but that we are now up to is whether we shall permit the scope of our I. G. relationship to expand into a field which would bring us into conflict with the duPont-General Motors-Ethyl interests. Our original position was that there was, as far as we could see, no occasion for doing this and that we would prefer not to. Following this line we used our good offices to effect a settlement between the Ethyl Corporation and the I. G. on the iron carbonyl matter. We have been working under a sort of indefinite understanding with Mr. Irene duPont to the effect that they were interested in the chemical business and would confine their relations with the I. G. strictly to that business, whereas, we were interested in the fuel business and would confine our relations to the fuel business. The present situation is that we desire to extend our U. S. contract into a broad relationship on coal and oil throughout the world and that the best apparent hope we have of doing this is to meet the Badische's wishes and go in with them on a substantial scale in the development of their chemical and fertilizer business in the United States. The logical outcome of the present course would be a lineup substantially as follows: Jersey, Shell, I. G., and perhaps Union Carbide, in one group, and Indiana, Texas, duPont, General Motors, and Ethyl in another group. I am assuming that the leader would be the General Motors and that our relations with them would be strained, to the extent that we would sell our interest in Ethyl back to the General Motors and that they would take on Indiana as a partner in our place, and the desire of Texas and Indiana to compete with us in the hydrogenation field, and the desire of duPont to retaliate for our having lined up with I. G., would bring about this fusion of interests.

The thing that worries me most about this is the General Motors angle. My impression is that the General Motors Corporation has been in the past a very loosely intercombined group of operating units but that it is very rapidly coming to function as a whole. I doubt whether Ford is going to hold his place in the automotive game and it is quite clear that a number of heretofore strong units are in a precarious position. The profit of General Motors for the last year as compared with the losses or very low earnings of its competitors indicates that it is actually in a very much better position than its relative proportion of sales indicates, and that in the future it will be much more than in the past the dominating factor in the automotive industry. I am not willing

to face the proposition of getting the General Motors definitely lined up against us if that can be helped. My definite suggestion, therefore, is that we make every effort to convince the duPont people that our backing of the I. G. in the chemical business in the United States is not directed against them but is an unfortunate result of circumstances beyond our control, and that we believe that if we can maintain, as in the past, the closest and friendliest relations with them, we will be in an advantageous position to serve both them and the I. G. in the United States in matters in which there might otherwise be unnecessary conflict of interests on both sides.

My intention is to try talk this matter out with Mr. Teagle and if his judgment accords with the above to have an early meeting with Mr. duPont so that you may get advice to guide you in your discussions with the I. G. The one general principle I can see clearly in this matter at the present time is that for *every reason* it would apparently be wise for us to go very slowly and keep as much in the background as possible, and limit our interest as much as possible in the I. G. chemical and fertilizer development in the United States. It is impossible to say how far we can go here as a trading matter if we wish to get the I. G. to make a general deal with us on coal and oil for the world. Certainly we should go no further than is absolutely necessary however at the present time.

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#### EXHIBIT No. 418

[Copy]

Memo prepared by Dr. Krauch.

#### MEMORANDUM, THURSDAY, MARCH 6TH—MEETING IN MR. TEAGLE'S OFFICE

Mr. Teagle referred to his previous talk with Mr. duPont relative to the proposed building of a synthetic nitrogen and fertilizer plant by the I. G. and Standard in Louisiana. He again explained that the original commitment for this joint enterprise was made some three or four years ago as a political necessity.

Dr. Krauch reviewed the present situation of the synthetic fertilizer industry in Europe as well as in the United States. He spoke of the cartel arrangement that had been entered into by the principal producers of synthetic fertilizers and the negotiations with the Chilean nitrate industry. Whether this control would be a matter for future negotiation as to the United States, his view was that excess production and imports have created an oversupply that would make unwise and uneconomic the building of a plant in Louisiana of the capacity that had been contemplated. There does exist, however, a potential market outlet for phosphate fertilizer, and it is now proposed that small plant of not more than 7,500 tons capacity annually of nitrogen be erected. About half of this production would be converted into nitrophoska fertilizer by transporting phosphate rock from Florida by water. The remaining production of anhydrous ammonia would be sold either as such or converted into ammonia sulphate for which there is a nearby market outlet. The plant for production of the ammonia and conversion to fertilizers would be erected either in the Monroe district or at Baton Rouge, as the cost of finished product might dictate, taking into consideration also the cost of distribution of finished product.

In the general discussion that followed Dr. Krauch's review of the fertilizer industry, Mr. duPont remarked that they are not producers of fertilizer as such but only produced ammonia which they sold to others for conversion into fertilizer; that they have had no experience whatever in the fertilizer end of the business and that that market seemed to be well taken care of by American Cyanamid, Allied, and others. The duPont interest, for the present at least, centers mainly in a synthetic production of ammonia and its commercial use in the explosives and fertilizer industries.

Mr. duPont agreed with the analysis of the general synthetic fertilizer situation as outlined by Dr. Krauch. He expressed the wish, however, that the duPont Company might become identified at this time with the enterprise.

It was then again explained to Mr. duPont that a fertilizer plant of this capacity could not be economically built and operated by itself but would only be profitable by being built and operated in conjunction with other joint development work of the I. G. and Standard. This other joint development work of the companies would be of such a nature as to give a byproduct of hydrogen. If the whole enter-

prise would be built at Baton Rouge it could then be tied into and become an essential adjunct of our present hydrogenation-oil treating plant, thereby very materially reducing investment and operating costs.

Mr. duPont then asked whether such additional joint work of the two companies contemplated entering the chemical field in which they are vitally interested. The reply to this inquiry was that it might lead to that altho the present definite plans did not contemplate doing so. I think Mr. Teagle, at this point, interjected the remark that, with oil and natural gas as the raw products of our manufacturing business, and such raw products being the cheapest source from which many chemicals could be produced, it would be logical to assume that eventually we would find ourselves in the chemical business, if by so doing a better market value could be given to such raw materials. Mr. duPont agreed that such would be a natural outgrowth.

After a general discussion of the economic factors surrounding the manufacture of both fertilizer and chemicals where natural gas, refinery gases, or petroleum was the base material, the following specific conclusions were reached:

1—That the I. G. and Standard proceed with their plan for building a synthetic ammonia plant and the production of nitrophoska fertilizer, ammonia sulphate, and/or anhydrous ammonia.

2—That these products be sold in markets not now economically available to the present fertilizer or ammonia industries, but that if, in the distribution of any of these products present arrangements were to be disturbed, such specific situation should then be discussed, as there is no intention of upsetting the nitrogen market.

3—That, if in the future other plants of a similar nature were to be constructed and not as a part of an oil refinery or oil hydrogenation plant of the Standard Oil Company, then a way should be sought by which the duPont interests could become associated with such new enterprise.

4—If, in the development of the new process, it is found that products or chemicals will be produced that are now commercially manufactured by the duPont interests, the Standard and I. G. would discuss same with the duPont Company and endeavor to find a way in which the commercial exploitation of such processes and products would best be carried on to the greatest benefit of each of the three parties.

In this connection, it was made clear to Mr. duPont that this work of the I. G. and Standard in the development of these new processes and products would be confined to research, development and commercial application. When a process has been worked out to the commercial stage it is then to be exploited through a corporation to be organized at that time, and such proposition will then not be commercially developed by the joint company. Dr. Krauch's definition of this joint company as a study company seemed to convey the idea clearly to Mr. duPont, and he expressed his complete satisfaction with the proposal as outlined.

Upon the breaking up of the meeting, Mr. duPont expressed himself as pleased and well satisfied with the discussion, and said that the duPonts would welcome the opportunity to become associated with the I. G. and Standard in any enterprise in which the interests would be mutual.

#### EXHIBIT No. 419

Dr. C. BOSCH,  
HEIDELBERG, *den 15th April 1930.*

Mr. W. C. TEAGLE,  
26 Broadway, New York.

DEAR MR. TEAGLE: Dr. Krauch has returned today and has reported to me about his negotiations with you.

I agree completely with everything he has arranged with you and am very pleased that our suggestions have met with your approval. I see that the possibility of a joint work has now become a certainty.

I should like to thank you also particularly for arranging for a conversation with Mr. Lamont duPont and for the personal interest you have yourself taken in it. I believe that as a result of your intervention the dead-lock of the negotiations between duPont and I. G. has now been overcome and that thereby our desire will be realized to reach a cooperation with this very energetic and cleverly proceeding firm, which we have tried to bring about for years. The reason

for the failure of our former negotiations may be the lack of the right personal contact which now has been established, thanks to your personal interest.

I understand that you and Mrs. Teagle will come over here during this summer. I should be very glad to met you at this opportunity.

With kind regards to Mrs. Teagle and to your associates,

I am sincerely yours,

C. BOSCH.

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EXHIBIT No. 420

JASCO CHEMICAL PROJECTS, TENNESSEE EASTMAN CO.,

June 23, 1936.

MR. FRANK A. HOWARD,  
26 Broadway.

DEAR FRANK: Referring to your letter of June 18th to Messrs. Teagle and Farish, I had a talk with Messrs. Hopkins and Moss, also Stuard Giraud (who happened to be here at the time), and asked the first two gentlemen to write me a letter confirming our conversation, and enclosed you will find a copy of their letter, outlining the various factors which should be taken into consideration before making a deal with the Tennessee Eastman Company.

In my letter to Mr. Teagle of May 4th I pointed out the danger of our various interests conflicting with one another in the manufacture and sale of chemical products, and the comments of Messrs. Hopkins and Moss on the Tennessee Eastman Co. proposition is a good illustration of the point.

As previously stated, it is my feeling that we should review our entire chemical situation before making any further possible "entangling alliances," and would suggest that the Board be furnished with copies of all existing contracts, together with a simple summary of the obligations we have with the various companies such as the I. G., duPont, Standard Alcohol, Jasco, etc., so as to enable the Board to arrive at a sound policy and to be sure that we have not, and will not, tie our hands in any way in the manufacture and sale of chemical products. This information is also vital to the Board because of the fact that the future expansion of our chemical business will involve the expenditure of quite a little money, and to ask the Board to pass on such expenditures, as well as propositions such as those proposed in your letter of June 18th, without their having a clear-cut picture of the whole situation, would be placing entirely too much responsibility on any one individual.

In order to expedite matters, I again suggest that a committee of the Board and yourself sit down and make a thorough review of our chemical business from a "business standpoint" to arrive at a sound policy and to determine what organization changes should be made with respect to patents, research, development, technical, manufacturing, and marketing, to carry out this policy.

Yours very truly,

F. H. BEDFORD, JR.

FHBJR/CEW.

Enc. Copies to Messrs. W. C. Teagle, W. S. Farish, E. J. Sadler, and R. W. Gallagher.

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EXHIBIT No. 421

STANDARD ALCOHOL COMPANY.

26 Broadway, New York, N. Y., May 15, 1940.

Via Messenger to Seaview.

Synthetic Toluol, W. O. Snelling, Trojan Powder Company, Allentown, Pennsylvania.

MR. H. W. FISHER.

DEAR BUD: Dr. W. O. Snelling of the Trojan Powder Company, Allentown, Pennsylvania, called yesterday and stated that he understood we were considerably ahead of other oil companies in producing synthetic Toluol, and he wanted us to quote him on it and give specifications.

We immediately got in touch with Douglas Stewart and got his advice as to how the matter should be handled, and he, in turn, talked with Major Harris.

It developed that Major Harris had sent the Trojan Powder Company a bid

and had told Dr. Snelling that we were preparing 20,000 gallons of synthetic Toluol.

After Stewart talked with Major Harris, Harris again talked with Dr. Snelling and told him that it was a more or less private arrangement and asked him to withdraw the bid.

Mr. Stewart advised us of this situation and then suggested, as a courtesy, that we call Dr. Snelling, but to tell him nothing, as Dr. Snelling would probably withdraw the bid.

I called Dr. Snelling yesterday in reply to his inquiry, and he confirmed the fact that he understood that we had 20,000 gallons of synthetic Toluol and wanted to know at what price we would sell it. I told him that as a matter of fact we did not have one gallon of synthetic Toluol made and even if he bid \$100 per gallon, we could not supply it at this time. I stated that we had done some work in producing synthetic Toluol, but as yet had found no interest and he seemed satisfied and stated that when he was in New York again he would drop in to see us.

Yours very truly,

JAMES G. PARK.

JGP: EAB.

c. c. Dr. M. B. Hopkins—Confidential.

MAY 22, 1940.

Personal

Mr. H. W. FISHER:

Mr. Sadler has asked me to tell you he felt it was a bad mistake to make the statement contained in the last paragraph of the attached letter from Park. He feels it is much better to say nothing than to say something that we know isn't true.

R. P. RUSSELL.

[Handwritten:] I felt about the same. Bud

#### EXHIBIT No. 422

STANDARD ALCOHOL COMPANY,  
26 Broadway, New York, N. Y., May 3, 1940.

Confidential.

Synthetic Toluol

Mr. H. W. FISHER,

*Building.*

DEAR SIR: The writer had a long talk with Douglas G. Stewart yesterday, regarding Toluol, at which time the following points were brought out:

That Major Harris, who is stationed at Wilmington and who is cooperating very closely with the duPont Company and who has worked with our people, will send out competitive bids shortly for TNT which must be made from synthetic Toluol. The duPont Company expects that they will get the bid; therefore, duPont will buy synthetic Toluol from us.

Regarding the Toluol situation in general, Mr. Stewart says that their company is in a rather peculiar position as they have a close working arrangement with the U. S. Steel Corporation which at the present time produces about one-half of the Toluol in the United States. In order to protect this position, while the duPont Company privately wish to see synthetic Toluol produced, they cannot openly encourage such production as they are fearful of jeopardizing the preferred position that they hold with the steel corporation.

The maximum capacity of the coke ovens will not permit more than 22,000,000 gallons to be produced and at the present time 17,000,000 gallons are being produced.

There is apparently a certain amount of flexibility as motor Benzol in peace times contains about 35 percent Toluol, and in war times there is only about 5 per cent left in motor Benzol.

The duPont Company, at the present time, is using about 4,000,000 gallons of the 17,000,000 produced.

The British Government have an inquiry calling for 2,000,000 gallons to be taken over twelve months from October of this year and Mr. Stewart's estimate

is that the British Government will use between three and four million gallons for the duration of the emergency.

This is creating a very acute situation in the Toluol market and Mr. Stewart at the present time is now buying material for his 1941 requirements. He also stated that the duPont Company is only nitrating for the U. S. Government and all inquiries they receive for export Toluol are being referred to Stoney-Mueller and Mr. Whetmore.

We understand the Atlas Powder Company have not been able to cover for the requirements to be used in the British Government subsidized nitration plant, referred to in our memorandum of February 16 to Dr. Hopkins, copy of which was given to you.

The writer has an appointment to see Mr. Stewart on next Wednesday, May 8, and will develop at that time the mechanics on handling the Government order which is now being produced at our refineries.

In connection with price, Mr. Stewart said that the official price for nitration Toluol is 26.5 cents. There is, however, a good deal being sold at higher prices and the duPont Company estimates the value of Toluol based on prices of other active solvent such as Methyl Ethyl Ketone, will be in the range of 35 to 60 cents per gallon.

The only reason that the Toluol producers do not let the price on Toluol reach its natural level is that they are much afraid of competition from synthetic Toluol and are holding an artificially low level to discourage inroads from this source.

Yours very truly,

J. G. PARK.

JGP:EAB.

c. c. Dr. M. B. Hopkins.

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EXHIBIT No. 423

JUNE 18, 1940.

E. I. duPont de Nemours & Co., Order No. 4583½ HB

Destination: Barksdale, Wis.

Synthetic Toluol

Mr. O. V. TRACY,

*Building.*

DEAR SIR: We have received an order from the duPont Company, their #45836½ HB, calling for two tank cars of Synthetic Toluol (10,000 gallons each) to meet Army Specifications 50-11-38A, to be shipped to Barksdale, Wisconsin.

This order calls for a sample before shipment is made, and also that the cars must be thoroughly clean, and leased to the duPont Company.

We understand from Mr. Janney Nichols that this material is now in Baytown and should be in Baton Rouge next week.

We also understand from Mr. Fisher that you will follow the production of this material from this point, and we should like your advice as soon as possible as to when shipment of the sample will be made, and when we can make arrangements for leasing the tank cars to duPont.

Yours very truly,

J. G. PARK.

JGP:FAB.

c. c. Dr. M. B. Hopkins, Mr. E. J. Sadler, Mr. Chester F. Smith, Mr. R. P. Russell, Mr. H. W. Fisher.

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EXHIBIT No. 424

APRIL 30, 1930.

DR. CARL KRAUCH,

*I. G. Farbenindustrie A. G.,*

*Ludwigshafen a/Rhein.*

MY DEAR DR. KRAUCH: I have just learned in an off-hand way that the duPont interests are doing considerable research work on producing artificial rubber from Butadiene. I am giving you this information, which I believe to

be accurate, with the thought that you will wish to carefully review your patent and applications for patents situation.

With kindest regards,  
Very truly yours,

E. M. CLARK.

EMC:HN. .

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EXHIBIT No. 425

FEB. 20th, 1941.

Confidential.

Mr. F. A. HOWARD,  
*Room 2800, Building.*

DEAR FRANK: As intimated to you briefly the other day, Dr. Ringer come to Paris to see me before I left end of January, and asked me to give you the following message in regard to cable which he had received, I believe, from your good self:

"Jasco cable will be difficult but one underlying point is that Jasco contract has not been wiped out as agreed whatever done the final financial outcome original intention of old Jasco agreement should govern."

He also asked me to endeavor to obtain further information in regard to Buna and Jasco.

He also requested me to endeavor to find out what has happened to the S. O. D. shares which were deposited against an amount of £37,000 to be balanced out through licensed payments through Hambros. He stated that he has had no news whatsoever from the S. O. D. on this question.

Yours very truly,

WDC:h

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EXHIBIT No. 426

STANDARD OIL DEVELOPMENT COMPANY,  
*26 Broadway, New York, June 26, 1940.*

United States Patent No. 2,191,295, H. Dohse et al., Assigned to I. G.

DR. K. HOCHSCHWENDER, CHEMNYCO, INC.,  
*521 Fifth Avenue, New York, N. Y.*

DEAR DR. HOCHSCHWENDER: Referring to our letter of May 8, 1940, the use of lauryl amine as an addition agent for asphalt to permit its use on wet aggregate, is of interest to us and we should like to know what royalty arrangement can be made in this connection. Naturally, the commercial use of the material will depend, to a considerable extent, on that factor.

Our investigation so far indicates that the maximum which we could afford to pay for the use of lauryl amine in asphalt, would be 25¢ per ton of asphalt. There are, of course, other substances which can be used instead of lauryl amine for the intended purpose, but it now seems to be one of the more readily available chemicals adapted for this use.

Would you be kind enough to consider this matter and, if you approve, take it up with I. G.

We wish you would also consider the possible desirability of having this patent assigned to the Standard Oil Development Company, subject to reversion to I. G. under suitable conditions.

Very truly yours,

/s/ W. E. CURRIE.

WEC:MS

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EXHIBIT No. 427

From: Room No. 2811  
To: IGSEKRETARIAT, Berlin, Germany.

Date: Dec. 22, 1939.

TER MEER RINGER: Plan handling Buna as follows: First, we desire ultimately group leading rubber companies in common company with us for most

economical manufacture. We cannot yet determine whether desirable include du Pont or other chemical interests in this venture. Urgently necessary however provide Perbunan for existing customers earliest moment and also prove our willingness to cooperate with rubber industry and relieve them from necessity starting developments which would result in litigation with us. Therefore are offering to leading companies license to manufacture for their own requirements only at straight royalty seven and one-half cents pound and with arrangement for sale to us only for resale by us to nonproducing consumers. All licensees would cross license us but not one another except they would agree not to sue one another on compounding patents and patents where invention is merely substitution Buna for other rubber. Too early to determine whether this plan will be completely successful or not but meanwhile it is affording basis for friendly discussions. We are now discussing general form and condition of license agreement with several companies.

Proposed field of license as follows: "A. The term 'process of manufacturing defined copolymer' shall mean all processes by which plastic products specifically but not by way of limitation the products now known as butadiene-acrylic nitrile copolymer and butadiene-styrene depolymer) ranging in properties from semifluid masses to rubber-like solids are produced by the copolymerization, interpolymerization, interpenetration or other joinder of diolefins of the butadiene type, or polymers thereof, with the following compounds, their homologs or substitution products, or polymers thereof, singly or in combination: 1. Acrylic nitrile. 2. Styrene and other vinyl benzene hydrocarbons. 3. Vinyl naphthalene hydrocarbons. 4. Vinyl halogen compounds. 5. Unsaturated ketones and 6 unsaturated others. B. The term 'defined copolymer' shall mean any product manufactured by said process of manufacturing defined copolymer. C. The term 'defined copolymer patent rights' shall mean the claims of all patents and patent applications of the United States which: one are contained in patents and patent applications now owned or hereafter acquired during the continuance of this agreement by the granting party, in the sense of having the right to grant licenses thereunder; and 2, are or may be based on inventions conceived prior to December 31, 1947, irrespective of the date of filing the patent application and of the grant of the patent; and 3 cover, and to the extent only that they cover; a, any process of manufacturing defined copolymer; b, defined copolymer; c, any apparatus particularly adapted for use in the process of manufacturing defined copolymer but only to the extent that such apparatus is so used; d, any process for the preparation of raw materials for the manufacture of defined copolymer but only to the extent that such raw materials are used to manufacture defined copolymer; e, any process of handling, finishing; vulcanizing, molding, or otherwise treating defined copolymer." Definition excludes straight butadiene polymers in view of Jasco's 1933 contract with General and our belief such polymers not commercially important. Would appreciate your telegraphic comments especially on definition as Jasco will warrant its ability to grant I. G.'s patent rights present and future under this definition. Also please advise whether you agree to international free trade on fabricated articles manufactured from licensed Buna.

DRAWOHAF.

FAH: CFG.

2953

JAN. 11, 1940

IGSEKRETARIAT, Berlin, Germany.

TERMEER RINGER. Exclusion straight butadiene polymers mentioned my cable December twenty-second was based upon erroneous idea now corrected by Chemnyco that Buna with which General Tire Company experimented under nineteen thirty three contract was straight butadiene polymer. Please amend proposed definition as follows: Insert after quote are produced by unquote the words quote the polymerization of compounds of the butadiene type including substituted butadienes comma in the absence of other polymerizable compounds comma or by unquote. Please cable when we may expect your comments on definition.

FRANK HOWARD.

FAH: MF

cc: Messrs. Russell, Hopkins, Fisher.



[Incoming message]

JANUARY 22, 1940.

Mr. HOWARD DRAWOHAFF,  
New York (Confirmation Copy).

Your cables re Buna. We would appreciate some additional information about following points. First, we presume that Jasco will license its rights only against obtaining from licenses exclusive and transferrable rights for the whole world outside the country in which the respective licensee has production activities and at least nonexclusive rights for latter country. According to Hague Memorandum Jasco would assign to I. G. all rights including those obtained from third parties for the agreed upon countries of the Jasco territory. Second, with respect to Germany, we suggest that Jasco shall give to I. G. royalty-free exclusive transferrable licenses on all rights obtained from third parties. Third, is our understanding correct that compounding shall not be included in definition and that consequently Jasco would not get compounding and substitution patent rights and experience from licensees? We feel this arrangement would lead to difficulties as probably some kind of compounding will be normally done and is an important step before vulcanizing and finishing of compolymer. We intended to assign our compounding and substitution rights to Jasco. Fourth, do we interpret your sentence beginning "All licensees would crosslicense" correctly by understanding that all licensees would crosslicense one another only on condition that they would agree not to sue one another on compounding and substitution patents? What arrangement do you propose for compounding and substitution patents for the I. G.-Jasco territory and for Germany? Fifth, in definition the words "Copolymerization interpolymerization interpenetration or other coinder," are not clear to us. What is difference of meaning of those words particularly what does last-mentioned word mean? Oblige us by cable reply earliest convenience. After receipt of your answer we shall cable or phone our comments on definitions.

ANILINFABRIK.

Date: JAN. 23, 1940.

From Room No. 2953.

To: ANILINFABRIK,  
Berlin, Germany.

Your cable January 20th re Buna. First, Jasco will endeavor to obtain rights you suggest and assign to Eyegee for the agreed upon countries; second, will endeavor to obtain for Eyegee suggested rights for Germany; third, the word "compounding" should be inserted in the definition before the word "handling" in three (E). Fourth, your interpretation incorrect, and our intention will be made clear by replacing the word "except" in the cross-licensing sentence of our cable with the word "stop", and inserting word "however" between the words "would and agree." Fifth, we do not know exactly what takes place chemically and physically in the process described, and therefore use the terms "polymerization," "copolymerization," "interpolymerization," "interpenetration," and "joinder" to mean any process in which the named chemicals are joined together or combined to make the product. Some, but not all, these words used in your patents.

FRANK HOWARD.

FAH: MF.

Cc: Messrs. Russell, Hopkins, Fisher.

[Copy of cable received in I. G. code by Chemnyco]

RECEIVED FEBRUARY 16, 1940.

974 Cables re Buna, we have to make following comments. First, our licensees in Germany and abroad are obligated to give to I. G. also for U. S. A. transferable rights which under 974 definition of defined copolymer patent rights would flow through I. G. and Jasco to 974 as licensees. Insofar as 974 endeavor to obtain cross licenses for countries outside U. S. A. would be without success this would lead to an unequitable situation. If it should not be feasible to replace Jasco's endeavoring by a forcible system of cross licensing it would be necessary to establish in 974 U. S. licensing contracts that as licensees will obtain through Jasco rights from I. G. licensees only insofar as they are willing to reciprocate. In view of this situation and other reflection we strongly recommend to establish

workable form of cross licensing at least for countries outside U. S. A. Second, re definition Point A, process of manufacturing defined copolymer, we suggest following changes which have to be made partly owing to existing prior commitments. A quantitative limitation of the diolefine content has to be inserted since otherwise field would be too broad and include plastics which have no rubberlike properties. We suggest to add after the words inserted in accordance with 974 cable, January eleventh, "including substituted butadienes" the words "but excluding halogen containing butadienes." Furthermore, insert after "diolefine of the butadiene type" the words " , excepting, however, halogen containing butadienes," finally add after the words "6 unsaturated ethers" the words "7 unsaturated esters, provided that said copolymers do not contain less than thirty percent by weight of polymerized diolefines of the butadiene type." Third, re definition defined copolymer patent rights point 3d, we agree to include preparation of special raw materials but "any process for the preparation of raw materials" is too broad and covers bulk chemicals commonly available on the market. Therefore we suggest to add after "raw materials" the words "normally not obtainable on the market." Fourth, re definition defined copolymer patent rights point 3d we suggest following wording "any process of compounding, handling, finishing, vulcanizing, molding, or otherwise treating defined copolymer either singly or in combination with other plastic materials." Last-mentioned addition is important to cover improvements in compounding or other processes which may be due to milling copolymer together with natural rubber or plastic materials. Fifth, as regards Jasco 1933 contract with General, we consider it no longer existent as starting of manufacture now is certainly not result of General's experiments in 1934. Sixth, we agree to international free trade on fabricated articles manufactured from licensed Buna.

ANILINFABRIK.

cc. Messrs. R. P. Russell, F. R. Loofbourow, M. B. Hopkins, H. W. Fisher, W. E. Currie.

From room No. 2953

To: Anilinfabrik, Ludwigshafen, Rhein, Germany.

Date: APRIL 3, 1940

Al Retel received through Chenmyco February 16th re Buna agree all your suggestions except question the insertion "normally not obtainable on the market" as being so broad as to exclude rights to processes for preparing nonomeric styrene, acrylic nitrile, and other primary raw materials for making copolymers. Propose meeting your criticism by rewriting three D of definition to read "Any process for the preparation of primary raw materials such as (1) Acrylic nitrile, (2) Styrene and other vinyl benzene hydrocarbons, (3) Vinyl naphthalene hydrocarbons, (4) Vinyl helegon compounds, (5) Unsaturated ketones, (6) Unsaturated ethers, (7) Unsaturated esters and, (8) Diolefine of the butadiene type, excepting however halogen containing butadiene, for the manufacture of defined copolymer but only to the extent that such raw materials are used to manufacture defined copolymer." We propose also following minor clarifying modifications, first, following a seven after "provided that" words "said copolymers" be changed to "resulting products." Second, words "or otherwise treating" in three E be changed to "but not otherwise chemically converting." Third, after word "plastic" in three E insert "or vulcanizable."

FRANK HOWARD.

MBH: MF

Approved by FAH

#### EXHIBIT No. 428

ORIGINAL CONTRACT OF OCT. 30, 1934, BETWEEN I. G. FARBENINDUSTRIE AND RÖHM & HAAS CO., PHILA., COVERING ACRYLIC AND METHACRYLIC ACID PRODUCTS, TOGETHER WITH LETTER OF MAY 22, 1935, FROM I. G. ENCLOSING LETTER OF APRIL 4, 1935, SIGNED BY RÖHM & HAAS AND I. G., AMENDING LAST PARAGRAPH OF ARTICLE V OF THE AGREEMENT

#### I. G. FARBENINDUSTRIE AKTIENGESSELLSCHAFT—PATENTABTEILUNG

Zwischen der I. G. Farbenindustrie Aktiengesellschaft, Frankfurt a/M., (im Nachstehenden kurz "IG" genannt) und der Röhm & Haas Company, Philadelphia

(im Nachstehenden kurz "RuH" genannt) wird folgender Vertrag geschlossen:

Die beiden Vertragschliessenden besitzen auf dem Gebiet der Herstellung und Verwendung von Acrylsäure und Acrylsäureverbindungen sowie von Polymerisationsprodukten daraus eine Anzahl von Patenten und Patentanmeldungen. Die Vertragschliessenden beabsichtigen mit diesem Abkommen, auf dem sachlichen und räumlichen Vertragsgebiet nach Möglichkeit gegenseitige Patentstreitigkeiten zu vermeiden und die Fabrikations- und Verkaufsverhältnisse zu regeln.

### § 1. SACHLICHES VERTRAGSGEBIET

Vertragsprodukte sind monomere oder polymere Acrylsäure und Acrylsäureverbindungen und solche Produkte, die diese Verbindungen enthalten. Als Acrylsäure gelten im Sinne des Vertrages auch solche Verbindungen, die am  $\alpha$ -ständigen Kohlenstoffatom der Acrylsäure substituiert sind. Unter Acrylsäureverbindungen sind alle Verbindungen verstanden, die durch Änderungen in der Carboxylgruppe entstehen, einschliesslich des Acrylnitrils.

Als Vertragsprodukte gelten ferner die durch eine Nachbehandlung chemisch veränderten Polymerisate der Acrylsäure und Acrylsäureverbindungen.

### § 2

Der Vertrag bezieht sich auf die Herstellung, den Verkauf und die Verwendung der Vertragsprodukte.

Die IG wird Vertragsprodukte nicht für die Herstellung von splitter sicherem Glas in den Handel bringen oder verwenden. Der Vertrieb und die Verwendung von reinen oder Weichmachungsmittel enthaltenden Methacrylsäureprodukten als Glaseratz, sowie von reinen oder Weichmachungsmittel enthaltenden Acrylsäureestern und Methacrylsäureestern und deren Mischungen als Klebmittel ist RuH vorbehalten.

RuH werden Vertragsprodukte nicht in den Handel bringen oder verwenden für die Herstellung oder Verbesserung von photographischen Artikeln, celluloidartigen Massen und Produkten daraus, Farbstoffen, künstlichem Kautschuk (als solcher gelten Polymerisationsprodukte von Polyenen), pharmazeutischen Artikeln, Schleifmaterialien.

### § 3. RÄUMLICHES VERTRAGSGEBIET

Der Vertrag erstreckt sich auf die Vereinigten Staaten und Canada.

### § 4. LIZENZ- UND ERFAHRUNGSAUSTAUSCH

Die IG erteilt RuH und RuH erteilen der IG Lizenz auf ihre bestehenden Schutzrechte; auf den in § 2, Absatz II und III, erwähnten Gebieten ist die Lizenz dem allein berechtigten Vertragspartner zu erteilen. Über künftige Schutzrechte wird im Einzelfall eine Verständigung erfolgen. (Wegen eventueller Bindungen durch andere Verträge erfolgt noch Klärung, eventuell briefliche Verständigung mit RuH.)

Im gleichen Umfange werden die IG und RuH ihre Erfahrungen auf dem Gebiet der Herstellung und Anwendung von Vertragsprodukten austauschen.

Die IG darf auf die ihr von RuH erteilte Lizenz Unterlizenzen zur Herstellung der Vertragsprodukte an die ihr befreundeten Firmen erteilen. Ferner ist die IG berechtigt, Dritten eine nicht übertragbare Unterlizenz zur Herstellung von Vertragsprodukten für die Erzeugung von künstlichem Kautschuk zu erteilen. In gleichem Umfange darf sie die ihr von RuH zufließenden Erfahrungen zur Herstellung von Vertragsprodukten weitergeben.

Im übrigen werden IG und RuH nur im gegenseitigen Einverständnis für die Herstellung der Vertragsprodukte Unterlizenzen vergeben und Erfahrungen an Dritte weiterleiten.

### § 5. HERSTELLUNG UND LIEFERUNG DER VERTRAGSPRODUKTE

Die Herstellung der Vertragsprodukte steht grundsätzlich beiden Vertragspartnern im Rahmen der ihnen nach § 2 zustehenden Gebiete frei.

Bis auf weiteres werden jedoch in den Vereinigten Staaten RuH allein Vertragsprodukte herstellen. RuH werden der IG und den ihr befreundeten Firmen Vertragsprodukte zum Selbstkostenpreis zuzüglich eines Aufschlags von 10% liefern. Sollten RuH nicht in der Lage sein, die Vertragsprodukte zu so billigen Preisen

zu liefern, wie sie bei einer Selbstfabrikation durch eine der IG befreundete Firma zu erzielen wären, oder die bestehenden Produktionsmöglichkeiten von RuH nicht ausreichen, um den Bedarf der IG bzw. der ihr befreundeten Firmen in U. S. A. und Canada zu decken, so steht es der IG frei, die Vertragsprodukte in den Vereinigten Staaten selbst herzustellen oder bei einer ihr befreundeten Firma herstellen zu lassen. Sie wird dies im gegebenen Fall RuH mit einer Frist von 9 Monaten anzeigen. Sollte ein von RuH nicht hergestelltes Vertragsprodukt seitens der IG oder einer ihr befreundeten Firma gewünscht werden, für dessen Herstellung RuH selbst eine Neuanlage errichten müssten, so soll die Frist von 9 Monaten im beiderseitigen Einverständnis gekürzt werden oder auch ganz in Wegfall kommen. Das Recht der IG zur Vergebung einer nicht übertragbaren Unterlizenz zur Herstellung von künstlichem Kautschuk an Dritte wird durch diese Bestimmungen nicht berührt.

Die IG ist nicht berechtigt, Vertragsprodukte in das Gebiet der Vereinigten Staaten von Amerika und/oder Canada aus anderen Ländern einzuführen.

RuH dürfen Vertragsprodukte nicht ausserhalb der Vereinigten Staaten und Canada verkaufen und werden auch solche Verkäufe durch ihre Abnehmer nach Möglichkeit verhindern. Dagegen steht es RuH frei, mit Zustimmung der IG Vertragsprodukte an die Firma Röhm & Haas, Darmstadt, zu liefern, falls und insoweit die IG solche Produkte Röhm & Haas, Darmstadt, nicht liefern kann.

Fertige Gebrauchsgegenstände, bei deren Herstellung Vertragsprodukte verwendet werden, dürfen die IG und ihre Abnehmer nach allen Ländern, also auch nach den Vereinigten Staaten und nach Canada verkaufen.

#### § 6. SCHUTZRECHTE

Beide Parteien werden während der Vertragsdauer weder direkt noch indirekt etwas gegen den Bestand der in- und ausländischen Schutzrechte des anderen Vertragspartners auf dem sachlichen und räumlichen Vertragsgebiet unternehmen, sich vielmehr auf Wunsch gegenseitig unterstützen. Schwebende Patentstreitigkeiten werden nach Inkrafttreten des Abkommens eingestellt.

Für und gegen das Schutzrecht einer Partei, das nur teilweise unter diesen Vertrag fällt, bleibt jeder Partei Handlungsfreiheit bezüglich der nicht Gegenstand des Vertrages bildenden Bestandteile dieses Schutzrechtes vorbehalten, wobei jedoch zur Vermeidung einer Gefährdung des vertraglichen Bestandteiles das Vorgehen möglichst vorher geregelt werden soll.

Patentverletzungen zu verfolgen ist Sache des Patentinhabers. Er kann von dem anderen Vertragspartner nicht gezwungen werden, Klage zu erheben, setzt diese aber in Stand, dass er auf eigene Kosten von sich aus die Patentverletzung verfolgt, ohne dass der Patentinhaber sich damit weitere Rechte begibt.

#### § 7. ABGABEN

Eine Lizenzabgabe ist nur in folgenden Fällen zu zahlen: (a) Sollten RuH nach dem Verfahren des amerikanischen Patentes 1,914,326—Production of alkylene cyanhydrins—Alkylencyanhydrin herstellen, so entrichten RuH an die IG eine Abgabe, die aus der Ersparnis errechnet wird, die RuH bei Anwendung dieses Verfahrens zur Gewinnung von Alkylencyanhydrin erzielen. Sie beträgt  $\frac{1}{2}$  dieser Ersparnis, mindestens aber 2% vom Marktwert der aus dem Alkylencyanhydrin hergestellten marktfähigen Vertragsprodukte. (b) Wenn die Herstellung von Vertragsprodukten unter Benutzung der Emulsionspolymerisation erfolgt—wofür die IG RuH bereits ihre Erfahrungen mitgeteilt hat—entrichten RuH an die IG eine Abgabe von 5% des Nettoverkaufspreises.

Die Abrechnung und Zahlung der Abgaben hat jeweils am 15. Januar, 15. April, 15. Juli und 15. Oktober für das vorangegangene Kalendervierteljahr zu erfolgen.

RuH erklären sich bereit, einem Bevollmächtigten der IG zu gestatten, die Richtigkeit der Abrechnung nachzuprüfen.

#### § 8. VERTRAGSDAUER

Der Vertrag läuft bis zum 13. Juni 1950, d. h. bis zum Ablauf des Patentes 1,914,326. Etwa an diesem Zeitpunkt noch laufende Lizenzen auf Schutzrechte einer der Parteien bleiben bestehen.

RÖHM & HAAS COMPANY, I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT

Ludwigshafen a/Rh., 30. Oktober 1934.

I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT.  
[Firma Rans'd Company, 222 West Washington Square, Philadelphia Pa.]  
UNSERE ZELCHEN (BEI ANTWERT ANZUGEBEN) PATENTABT.

Ludwigshafen A. Rhein den 22. Mai 1935 K/Sp

Betreff Acrylsäurevertrag.

Von der Firma Röhm & Haas A. G., Darmstadt, erhalten wir Ihr gefl. Schreiben vom 4. April ds. Js. in doppelter Ausfertigung zugesandt. Eine Ausfertigung senden wir Ihnen mit unserer Unterschrift versehen anbei zurück.

Die Bedeutung des Wortes "fertige Gebrauchsgegenstände" ist, worauf Sie auch in Ihrem Schreiben vom 25.1.1935 an Herrn Dr. Hutz hinweisen, in dem Bericht vom 10.10.1934 über den Besuch Ihres sehr geehrten Herrn Otto Haas in Ludwigshafen auf Seite 13/14 näher erläutert

Hochachtungsvoll,

1 Anlage.

I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT.

RÖHM & HAAS COMPANY,  
Philadelphia, Pa., April 4, 1935.

Re Agreement between I. G. and Röhm & Haas Co., Phila., of October 30, 1934, relating to Polyacrylic Acid Esters.

I. G. FARBENINDUSTRIE, AKTIENGESELLSCHAFT,  
Ludwigshafen a/Rhein, Germany.

(Attention: Patentabt.)

GENTLEMAN: Dr. W. H. Hutz, of the patent office of Dr. Walter H. Duisberg in New York, has written us saying that you have been kind enough to consent to a minor amendment of our agreement with you of October 30, 1934. Dr. Hutz has suggested that we should write you regarding this amendment.

In accordance with your letter to Dr. Hutz, we take pleasure in advising you that it will be satisfactory to us to have the last paragraph of Article V of the agreement of October 30, 1934, amended so as to read as follows:

"Fertige Gebrauchsgegenstände, bei deren Herstellung Vertragsprodukte verwendet werden, dürfen beide Vertragspartner und ihre Abnehmer ohne territoriale Einschränkung verkaufen."

Will you kindly sign one copy of this letter and return it to us to be attached to the original contract as part thereof?

Thanking you for your courtesy, we remain,

Very truly yours,

RÖHM & HAAS COMPANY,  
S. C. KELTON.

SCK: Ebm.

Accepted: Ludwigshafen a/Rh., 22.5.1935, S. C. Kelton, Secretary.

I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT,  
PPA. HIRAMS M. SCHTAINBERG.

TRANSLATION BY DR. KELLY OF AGREEMENT OF OCTOBER 30, 1934, BETWEEN THE  
I. G. FARBENINDUSTRIE AND RÖHM & HAAS COMPANY, PHILA., PA., RE PLEXIGUM

The following contract has been concluded between the I. G. Farbenindustrie Aktiengesellschaft, Frankfurt a/M, hereinafter called I. G., and the Röhm & Haas Company, Philadelphia, hereinafter called R. & H.

Both parties to this contract own a number of patents and patent applications on the preparation and application of acrylic acid and acrylic acid compounds as well as polymerization products made therefrom. Both parties intend, by means of this contract, to avoid as far as possible any patent controversies between themselves as to the territory and subject matter covered by this contract and to regulate the conditions of manufacture and sales.

## SECTION 1. MATERIALS COVERED BY CONTRACT

The products covered by this contract are monomeric or polymeric acrylic acid and acrylic acid compounds and such products as contain these compounds. According to the meaning of the contract the term "acrylic acid" also includes those compounds which have a substituent on the carbon atom of the acrylic acid. Under acrylic acid compounds are included all compounds arising from a change in the carboxyl group including acrilicpntrile.

Polymers of acrylic acid and of acrylic acid compounds which have been subsequently changed by chemical action are also included as contract products.

## SECTION 2

The contract relates to the manufacture, sale, and use of the contract products.

The I. G. will not use or put on the market the contract products for use in the preparation of nonsplintering glass. The marketing and use of methacrylic acid products either pure or containing plasticizers as glass substitutes, and also the use of acrylic acid esters, methacrylic acid esters and mixtures thereof, either alone or containing plasticizers, for adhesives is reserved to R. & H.

R. & H. will not sell nor use the contract products for the preparation or improvement of Photographic articles, Celluloid-like masses or products made therefrom, Dyesuffs, Artificial rubber (which also means polymerization products of polyenes), Pharmaceutical articles, Abrasives.

## SECTION 3. TERRITORIAL EXTENT

The contract extends to the United States and Canada.

## SECTION 4. EXCHANGE OF LICENSES AND INFORMATION

The I. G. grants R. & H. and R. & H. grants the I. G. a license under their existing patent rights; with respect to the subject matter mentioned in Section 2, paragraphs II and III, the license is granted only to the party entitled thereto. An agreement on future patent rights will be made in each individual case. (In case of possible future connections through other contracts, an explanation will be given or an agreement reached with R. & H.)

To the same extent the I. G. and R. & H. will exchange their information on the preparation and use of the contract products.

The I. G. may grant to "friendly firms" sublicenses under the license granted it by R. & H. for the preparation of the contract products. Furthermore, the I. G. is permitted to grant to third parties a nontransferable sublicense for the manufacture of contract products for use in the preparation of artificial rubber. To this extent it (I. G.) may divulge to others the information received from R. & H. regarding the preparation of contract products.

In other respects I. G. and R. & H. will only grant sublicenses for the preparation of the contract products and divulge information to third parties after a mutual understanding has been reached.

## SECTION 5. PREPARATION AND DELIVERY OF CONTRACT PRODUCTS

Both parties to the contract are free to manufacture the contract products within the scope of the fields granted them in Section 2.

Until further notice, however, R. & H. alone will manufacture the contract products in the United States. R. & H. will deliver contract products to the I. G. and its "friendly firms" at cost plus 10%. If R. & H. should not be in a position to deliver the contract-products at as low a price as could be obtained if one of the I. G.'s "friendly firms" were to manufacture them, or in the manufacturing capacity of R. & H. were not sufficient to cover the requirements of the I. G. or its "friendly firms" in the United States and Canada, the I. G. would be free to manufacture the products themselves or have them manufactured by one of its "friendly firms." In such a case the I. G. will give R. & H. nine months' notice. In case the I. G. or one of its "friendly firms" should desire one of the contract products which R. & H. does not manufacture and for the manufacture of which a new plant would have to be erected, then the notice period may be shortened by mutual consent or entirely eliminated. The right of the I. G. to grant a nontransferable sublicense to third parties for the manufacture of artificial rubber is not affected by these conditions.

The I. G. is not permitted to import the contract products from other countries into the United States and/or Canada.

R & H may not sell the contract products outside of the United States and Canada and will prevent such sales by their customers insofar as it is possible. On the other hand R & H is permitted, with the assent of the I. G., to deliver contract products to Röhm & Haas, Darmstadt, in case and to the extent that the I. G. cannot deliver such products to Röhm & Haas, Darmstadt.

Finished articles, in the preparation of which contract products are used, may be sold by the I. G. and its customers to all countries, also to the United States and Canada.

(This paragraph changed by letter of April 4, 1935, to I. G. making it reciprocal.)

#### SECTION 6.—PATENT RIGHTS

Both parties, neither directly nor indirectly, will undertake anything against the status of domestic and foreign patent rights of the other party within the subject matter and territory of the contract, but shall, on request, assist each other. Pending patent controversies shall be dropped after this contract becomes effective.

Freedom of action is reserved to each of the parties to proceed for or against those patent rights of the other party which come only partially within the scope of this contract, but only with respect to those parts of the patent rights which do not form part of the contract, in which case, however, in order to avoid endangering the conditions of the contract, the proceedings will be regulated as well as possible in advance.

It is the concern of the owner of the patent to proceed against infringements. The owner may not be forced by the other party to bring action but shall place the latter in the position so that he may proceed at his own expense against infringements without the owner of the patent foregoing any of his rights.

#### SECTION 7.—ROYALTIES

A royalty under these licenses is to be paid only in the following cases:

(a) If R & H should produce alkylene cyanhydrin according to the process of American Patent 1,914,326—Production of Alkylene Cyanhydrines—R & H shall pay the I. G. a royalty calculated on the saving which R & H makes due to the use of this process for producing alkylene cyanhydrins. The royalty shall amount to one-third of this saving with a minimum of 2% of the market value of any marketable contract products made from alkylene cyanhydrins.

(b) If the contract products are produced by means of polymerization in emulsion—for which the I. G. has already communicated its information to R & H—R & H will pay the I. G. a royalty of 5% of the net sales price.

The accounting and payment of the royalties shall be made on the fifteenth day of January, April, July, and October for the preceding quarter.

R & H is willing to permit a representative of the I. G. to test the correctness of the accounting.

#### SECTION 8.—DURATION OF CONTRACT

The contract extends to June 13, 1950, that is until the expiration of Patent 1,914,326. Any licenses still in force at this time under the patent rights of one of the parties remain in force.

RÖHM & HAAS COMPANY

I. G. FARBENINDUSTRIE AKTIENGESellschaft.

LUDWIGSHAFEN A/RH., October 30, 1934.

#### I. G.—R & H CONTRACT ON ACRYLIC ACID COMPOUNDS

Section 1. *Products covered.*—Acrylic and methacrylic acid and their compounds, monomeric—polymeric including nitriles. Also products obtained by chemical treatment of polymers.

*Report of Oct. 10 (#2) (a).*—R & H wants to extend contract to include vinyl compounds generally. I. G. cannot on account of other obligations at that time.

*Report of Oct. 30.*—Extension to vinyl compounds in general not possible, at least at present on part of I. G.

Section 2. *Reserved to R & H.*—Products for safety glass. Glass substitutes, Adhesives. With or without plasticizers.

*Reserved to I. G.*—Photographic articles, Celluloid-like materials. Dyestuffs, Artificial rubber. Pharmaceutical articles, abrasives.

*Report of Oct. 10 (#2) (b).*—Artificial silk reserved to I. G. R & H also wants to work this field but I. G. wants to work it alone at least for present. Insulators open to both. No agreement on leather finish. [Not included in contract.]

*Report of Oct. 19 (3).*—R. & H. still wants to work silk field. I. G. cannot agree. R & H offers to license I. G. for mercerizing and improving cheap cottons to resemble linen. R & H gave papers on this to I. F. confidentially. These sent to textile laboratory. Patent applications to be sent to I. G. [Not included in contract.]

Wording of Section 2, Paragraph 2, changed to include plasticizers in glass substitutes and adhesives. [Included.]

Leather finishes should be included according to R & H. This not prohibited to R & H. I. G. reserves right to market such products. R & H agrees. [Not mentioned in contract.]

*Report of Oct. 26 (4).*—R & H can also work in artificial silk field. This canceled from I. G. reservations. [Not in.]

New reservation for I. G. is abrasives. Artificial rubber added to I. G. fields. [Included in contract.]

Section 3. *Contract extends to U. S. and Canada.*—Nothing of importance regarding this in the reports except as to Darmstadt and other countries. I. G. to notify Darmstadt.

Section 4. *License and Exchange of Information.*—Exchange licenses on existing patent rights as to fields in Section 2. Serve with information. I. G. may give sublicenses to friendly firms. Also for artificial rubber. Other sublicenses only by mutual consent.

*Report of Oct. 10 (f).*—Defines "friendly firms" which in U. S. are General Aniline Works and firms arising from I. G.-Standard Oil connections. (Confirmed in separate letter—Mr. Haas.)

Section 5. *Manufacture and Delivery.*—R & H alone to manufacture in U. S. R & H to deliver to I. G. firms at cost plus 10%. I. G. can manufacture or have friendly firms manufacture only if R & H cannot deliver. 9 months' notice. New products requiring new plant may be manufactured by I. G. on shorter notice or notice period may be eliminated. Artificial rubber licenses not changed by this. I. G. cannot import to U. S. and Canada. R & H may not export except to Darmstadt in case I. G. cannot deliver to Darmstadt.

Finished articles may be sold by I. G. in all countries including U. S. and Canada.

*Report of Oct. 10 (#2) (g).*—First sentence "in allen Vertragsländern" cancelled. Notice period changed from 3 months to 9 months for I. G. or friendly firms starting manufacture. [In contract.]

Sentence 4 of suggested contract cancelled as territory confined to U. S. and Canada. [Out.]

Defines finished articles as "Fertige Gebrauchsgegenstände."

*Report of Oct. 19 (3).*—Manufacture by I. G., etc., only in case R & H price is too high or R & H cannot produce sufficient for I. G., etc., needs.

R & H Darmstadt to buy from R & H Philadelphia in preference to other firms if I. G. unable to deliver. [In.]

*Report of Oct. 26.*—Deliveries to Darmstadt as above.

New paragraph on sales to I. G. and production in U. S. by I. G., etc. [As in contract.]

*Letter April 4, 1935, R & H to I. G.*—New paragraph on exportation of "fertige Gebrauchsgegenstände" removing territorial limitations.

Section 6. *Patent Rights.*—Parties take no action against each other's patents, etc. Controversies to be settled. Suing infringers is option of owner. Cannot be forced to sue. [In.] Must help other party if requested. No changes made in reports.

Section 7. *Royalties.*—Payable only on chlorhydrin process, on savings to R & H over other process  $\frac{1}{2}\%$ . [In.] R & H also pays royalty on emulsion process. No changes. [In.]

Section 8. *Term of contract.*—Expires on June 13, 1950, with U. S. Patent 1,914,326.



EXHIBIT No. 429

## MEMORANDUM

JANUARY 20, 1941.

To Mr. L. B. Turner.  
 From Mr. H. W. Fisher.  
 Subject: Polybutene for export.

This refers to your memorandum of January 10 with respect to the exporting of Polybutene, particularly to South America and Japan.

In answering your questions, it is necessary to distinguish between Polybutene used in the petroleum industry, for example in the form of Paratone and Paratac, and Polybutene used outside the petroleum industry.

With respect to the former, we have not reached a final settlement with the I. G., but meanwhile are following the arrangement originally in existence whereby we sold Polybutene in the petroleum industry throughout the World except Germany. On Polybutene for use outside the petroleum industry, we have reached an agreement with the I. G. whereby patent rights are divided between us on an exclusive geographical basis. Under this arrangement, our territory comprises the United States and its territorial possessions, the British Empire and the French Empire. The I. G.'s territory is the rest of the world.

If we sell for export to some South American country, for example, or to Japan, we cannot convey to the customer any license whatever to use the Polybutene in these areas; furthermore, by so doing, we are presumably not only violating our agreement with the I. G., but may be partially liable for our customer's violation of the I. G.'s patent rights. It is apparent, therefore, that we cannot knowingly sell to an exporter who is going to move Polybutene into some part of the world where the I. G.'s patent rights obtain.

Naturally, under the present war conditions, it is physically impossible for us to reach some markets that properly belong to us, for example, occupied France, and conversely, it is impossible for the I. G. to reach certain other markets. Therefore, there always exists the possibility of making some temporary arrangement with the I. G. if it is to our mutual advantage to do so. About a year ago, we had customers in Norway, Sweden, and the Netherlands who wished to purchase Polybutene and could not obtain it from the I. G. We asked the I. G. for permission to supply them and they refused to give us this permission for a period. It should be noted that we cannot presume inability of the I. G. to deliver. It is therefore necessary to refer South American and Japanese customers to the I. G. If they are unable to get their requirements, we can then ask the I. G. for permission to supply them. I shall be glad to request this permission from the I. G. in any case where you have gone through the necessary preliminary steps herein outlined.

H. W. FISHER.

HWF:MG

## MEMORANDUM

To: Mr. H. W. Fisher.  
 From: Mr. L. B. Turner.  
 Subject: Polybutene for export.

Recently we have received several requests from exporters for Polybutene literature and samples. Most of these people wish to export to either South America or to Japan.

In order to facilitate the handling of these contacts I should appreciate it if you could give me some idea as to what the marketing set-up is outside of the British and French empires. As I understand it, the I. G. agreement limited the sale of Polybutene by the Standard Oil Development Company to the British and French empires while the rest of the world business was to be done by the I. G.

What I would like to know now is, whether we can sell domestically to exporters who will in turn export to the rest of the world, outside of Britain and France, at their own risk.

Any information which you may be able to pass along to me, relating to this problem, will be greatly appreciated.

L. B. TURNER.

LBT:w  
 1/10/41

OCTOBER 4, 1939.

Dr. C. MUELLER,

*Chemnyco, Inc., 521 Fifth Avenue, New York City.*

DEAR DR. MUELLER: Referring to previous correspondence concerning the request which we received from Messrs. F. A. Hughes and Company, Ltd., that English manufacturers be permitted to import submarine cables containing polybutene into the United States, I am attaching a copy of Mr. Jones' letter of October 2.

You will note that he now definitely declines to grant this permission. I find his position is a little difficult to understand in view of his previous letter in which he indicated that American manufacturers are fully protected by tariff. On the other hand, it is consistent with Okonite's unwillingness to include a free trade clause in the original agreement.

Very truly yours,

H. W. FISHER.

HWF: MG  
Attach.

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[Copy]THE OKONITE COMPANY,  
October 2, 1939.

Mr. H. W. FISHER,

*Manager, Commercial Department, Standard Oil Development Company,  
26 Broadway, New York, N. Y.*

DEAR MR. FISHER: While I think, personally, that we are fully protected from English competition in the field of submarine cables in this country, at the same time I do not feel that it would be wise for us or that our licensees would agree to a modification of Jasco's contract to permit such importation.

I think that if you would give Messrs. F. A. Hughes and Company, Ltd., of Great Britain, the information I gave you in my letter of September 26, that this will assist you and them in handling negotiations with English customers.

Very truly yours,

/s/ F. C. JONES, *President.*

FCJ/VB

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SEPTEMBER 29, 1939.

Mr. F. C. JONES,

*President, The Okonite Company,  
501 Fifth Avenue, New York City.*

DEAR MR. JONES: It appears from your letter of September 26, commenting on Messrs. F. A. Hughes & Co., Ltd., request that one of their customers be granted permission to import submarine cables containing VISTANEX, that you believe you are fully protected from English competition in this field because of the high duty which applies. If this is the case, it occurs to me that you might be willing to modify your license to permit such importation. This would be desirable from our point of view, even though in your opinion it would never result in the actual importation of any cables, because the granting of such permission would make negotiations with the English customers somewhat easier.

Will you please let me know if this is a correct interpretation.

Very truly yours,

H. W. FISHER.

HWF: MG

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SEPTEMBER 25, 1939.

Mr. F. C. JONES,

*President, The Okonite Company, 501 Fifth Avenue,  
New York City.*

DEAR MR. JONES: Messrs. F. A. Hughes and Company, Ltd., who are the agents in Great Britain for VISTANEX Polybutene have advised us that one of their customers is using this material for the construction of submarine cables. This customer desires to know whether or not he can import such cables containing VISTANEX Polybutene into the United States. Hughes advises us that it is their

understanding that very little submarine cable is manufactured here and that most of them are imported from England.

Will you please advise us whether or not you would be willing to agree to a modification of Jasco's contract with you to permit the importation of such cables. The English manufacturers seem to have adopted the use of VISTANEX Polybutene much more rapidly than has heretofore been the case in this country, and since the market for this material in cable manufacture in the United States is as yet practically negligible, we are naturally interested in developing all possible outlets and hope that you can see your way clear to permit the importation of these English submarine cables.

Very truly yours,

H. W. FISHER.

HWF: MG  
cc. Dr. C. Mueller

SEPTEMBER 22ND, 1939.

STANDARD OIL DEVELOPMENT COMPANY,

26 Broadway, New York, N. Y.

(Attention: Mr. H. W. Fisher.)

GENTLEMEN: In a recent letter I. G. Farbenindustrie Aktiengesellschaft discussed the importation into the United States of submarine cables in the construction of which Vistanex has been used and cited in connection therewith the Okonite agreement which prohibits such imports, except when they originate in Germany.

From the information before us it appears that F. A. Hughes & Co., Ltd., of London, one of whose customers intends using Vistanex in the construction of such cables, have inquired whether this import restriction could be withdrawn. We understand that as basis for this request it was stated that practically no submarine cables are manufactured in the United States and that such cables are almost exclusively imported from England.

Please consult with The Okonite Company whether they would agree to an abrogation of the existing restriction so that the importation of Vistanex-containing submarine cables from England to this country could be permitted. I. G. points out that if it should prove to be a fact that there is no manufacture of such cables in the United States and if Okonite does not agree to a withdrawal of the import provision, a promising field for the use of Vistanex would be lost.

We are submitting this matter for your consideration and should be pleased to receive at your convenience an expression of your views for future guidance.

Very truly yours,

CHEMNYCO, INC.  
C. MUELLER.

FB: heb.

#### EXHIBIT No. 430

#### EXTRACT FROM EXECUTIVE COMMITTEE MEMORANDA

Date: February 24, 1941.

Present: WSE, WEP, EIL, TCMcC.

Mr. Howard reported that, in line with Mr. Crampton expressing at lunch the other day the German I. G.'s desire to have France included in the area in which hydrogenation patent rights are reserved to them rather than in the area in which hydrogenation rights are received to the Hydrogenation Patents Company, he had reviewed the matter further and found this arrangement could be put into effect smoothly because it appears the I. G. already has completed necessary ground work with Standard Francaise des Petroles and the French Government, so that S. E. P. would be in position to look after both Jersey and Shell interests. Although Shell to date has seemed reluctant, or perhaps under pressure of the British Government has been unable, to entertain favorably this proposal to the extent that their interest in International Hydro Patents is affected, Mr. Howard said he believed matters had reached the point where they now may yield.

Committee felt it would be advantageous to effect the arrangement suggested by the I. G.

## EXHIBIT No. 431

20TH SEPTEMBER, 1938.

Mr. ORVILLE HARDEN,

*30 Rockefeller Plaza, New York.*

DEAR ORVILLE: The enclosed telegram represents the conclusion of two hours discussion on this subject this morning following a thorough review of the matter first by Mr. Soubry and then later by Mr. Asbury and myself with Mr. Klasen and his associates in Germany. Mr. Klasen is quite convinced that even though the Government has changed its position as regards the 40,000 tons lube plant which was included in their first proposal, if he does not indicate his full acceptance of the programme by the end of this month there is danger that the D. A. P. G. will be dropped out of the Four Year Plan entirely. Although we all thought of the hydro plant as being an unwelcome investment for us which we were making primarily for the purpose of obtaining permission to proceed with the Ebano enlargement and the lubricating-oil programme, it is not at all clear that this is the correct view of the situation. The production of aviation gasoline from imported gas oil by hydrogenation is probably as stable and permanent part of the oil business in Germany as can be imagined. On reconsideration we all feel that if D. A. P. G. does not invest its available cash in this project which is definitely required for the Four Year Plan it will be allotted to others. If D. A. P. G. does not undertake it the following consequences are likely to issue:

Firstly, D. A. P. G. will sooner or later be asked to put all of its available cash into other schemes, probably less sound economically than the hydro-aviation plan. Secondly, if it fails to follow suggestions of this kind it will find itself increasingly in disfavour and less assured of a supply of internally produced goods for its distribution system.

After considerable discussion this morning, the one critical point seemed to be whether the financial commitment was really too large a one for D. A. P. G. to undertake. Except for objection on this score there seemed to be no sufficient reasons for declining to go along with the programme. D. A. P. G. has quick surplus assets in the way of cash and securities over and above its necessary working capital at the present time of 60 million marks. It is estimated that earnings over and above its normal budget requirements for other branches of its business up to the end of 1940 will be about 45 million marks in addition. Above this amount of 105 million marks of immediately and potentially available cash, it would be a normal and customary thing for D. A. P. G. to borrow currently from the Banks up to 40 or 50 million marks to finance its customs duties and inventories. It therefore would appear that D. A. P. G.'s cash position is most unusually strong, and that the commitment of 80 million marks would still leave them with the very substantial margin of nearly 100 percent over and above their real cash requirements. It is quite probable that some of this margin will disappear through over-runs, possible increased taxes, and other factors which have been considered. Nevertheless a margin of 70 to 80 million marks available cash including normal current Bank loans which D. A. P. G. are not now making, seems sufficient.

We may or may not be able to increase this margin by the recently conceived plan to endeavour to substitute a catalytic cracking plant for a part of the hydro plant. We would, of course, like to do so, not only to increase our margin for cash but also to gain additional experience in catalytic cracking at the earliest moment at a place where the I. G. can work most effectively in applying their own knowledge of the catalytic cracking developments.

There is one other angle of the matter which we discussed this morning, and on which we are all agreed. The internal standing of the D. A. P. G. organization is distinctly not good at the present time, very largely for the reason that as a company D. A. P. G. have not borne any active part in the development of Germany's internal industries, which is now assumed to be the first duty of every German, individual and company. The Rhenania have been very busy and aggressive in increasing their refining capacity and refining imported products for re-export. The Vacuum have been very aggressive in refinery construction and both aggressive and fortunate in obtaining crude production. Under present conditions Engler and Kruspig are consulted by the Government on all problems connected with the oil industry, and D. A. P. G. is left out of the conferences. The fact that Klasen is regarded as a "Schacht" man may also have something to do with this situation. In any event the morale of the D. A. P. G. organization is very badly affected by their present situation, and they have lost some very good men. For the first time in my acquaintance with him Mr. Klasen has seemed very much troubled and discouraged about the prospects.

While these last considerations are, of course, not by any means to be controlling, and would not dictate the acceptance of any German policy which was unsound from a business standpoint, they have certainly some weight. Particularly for this reason we hope you gentlemen will have acted at once upon our recommendation of the enclosed telegram.

Very truly yours,

F. A. HOWARD.

FAH/RMB.

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EXHIBIT No. 432

MEMORANDUM FOR THE EXECUTIVE COMMITTEE

OCTOBER 28, 1938.

The following matters are to be reported on:

(1) *Hydrocarbon Synthesis Agreement*.—Under this agreement a new U. S. corporation, Hydrocarbon Synthesis Corporation, will undertake the development, and eventually the licensing, of processes of manufacturing liquid hydrocarbon from carbon monoxide and hydrogen. This process, under the name of the Fischer Process, is in commercial use in Germany to produce gasoline, diesel oil and paraffin wax from coal. The costs of the process as so far developed are high—approximately the same as the cost of hydrogenation of coal. By using cheap natural gas as a raw material to produce the carbon monoxide and hydrogen however the cost according to present methods may be very greatly reduced. There is good reason to believe that still further large reductions in manufacturing costs (especially as applied to natural gas) can be effected within the next few years by further technical work along very promising lines which have already been partly proven.

The parties to this undertaking, as regards the U. S. and Canada, and the participation of the parties, are approximately as follows:

Standard-I. G. (in behalf of SO (NJ) and I. G. Farb.)	50%
M. W. Kellogg Co.	25%
Shell Development	25%

Outside of the U. S., Canada, and Germany, the process will be exploited by a new company, International Hydrocarbon Synthesis Company, in which the participants will be the International Hydrogenation Patents Company, and the Ruhrchemie Akt. The I. H. S. and the I. H. P. will pool their revenues from the hydrogenation process and the synthesis process, so that there can be effective cooperation between the companies in technical, economic, and licensing matters. The immediate cost of this undertaking to the Jersey interest is approximately \$60,000.00, representing the Jersey net share in the cash payments to the Ruhrchemie. The only additional expense will be Jersey's contribution to the cost of the joint research and development program of the parties, which will probably amount to \$100,000.00 to \$200,000.00 per annum over the next two or three years. On any commercial use of the hydrocarbon synthesis process Jersey, as well as the other parties, will have to pay an initial royalty of approximately 1¼ cents per barrel of product which diminishes with the increasing scale of operation of the parties, and eventually ceases. The high points of the matter are that Jersey and Shell acquire sufficient effective control of the hydrocarbon synthesis process in the world outside of the U. S. so that their position as leaders in the entire field of synthetic petroleum production is assured.

In the other aspect of the matter, which is the probable development of this process as a means of producing low-cost oil products from our gas reserves, we have established very sound and effective cooperation among the parties best able to contribute to this development.

(2) *Catalytic Cracking Agreement*.—There was signed in London on October 18th an agreement between negotiators for the following parties:

I. G. Farbenindustrie  
Jersey  
Kellogg  
S. O. (Indiana)

At the same time there was obtained a letter signifying agreement in principle of the Anglo-Iranian company. Upon the ratification of the negotiators' action by their respective principals, the agreement is to be immediately put into effect,

to the extent of establishing full technical and patent cooperation between the parties. The fields of the agreement is, generally speaking, catalytic oil refining—especially catalytic cracking and reforming. These processes verge into our hydrogenation processes by almost indistinguishable degrees. Since the rights of all the parties must be controlled by agreed-upon definitions, it has been necessary to create a special field, called the "Intermediate Zone," in which lie processes conducted in the presence of hydrogen, but without hydrogen consumption. The rights granted by all the parties to the S. I. G. in connection with these Intermediate Zone processes are sufficiently broad to permit S. I. G. to fulfil all of its obligations under the hydrogenation agreements without attempting the impossible task of determining in advance the exact scope that the hydrogenation definitions may substantially be held to have, as applied to these processes. At the same time the financial rights of all the parties are preserved by a pooling of revenues from licensing in the Intermediate Zone, so that it is not important to any of the parties whether the licensing be actually accomplished through the hydrogenation set-up, or through the new catalytic cracking set-up.

The important features of the new agreement are that all of the member oil companies pay to the S. I. G. a royalty of 5¢ per barrel of product treated for all catalytic cracking operations; and for operations in the Intermediate Zone, agree to pay an arbitrated royalty not lower than the amount stated and not higher than the hydrogenation royalties. The S. I. G. licenses the patent rights of the group to third parties through Kellogg as exclusive licensing agent. From third-party royalties S. I. G. gets 25% of the gross royalty, Kellogg 20% of the gross royalty, and the remainder, after payment of expenses (including research costs), is divided between the participating companies, roughly on the basis of their size in relation to the world's oil industry.

Anglo-Iranian does not participate in royalties collected from third parties. Standard of California has expressed its approval in principle of the whole arrangement, and agreed to pay a royalty intermediate between the rate paid by member companies and the minimum rate paid by third parties. The specially advantageous position offered to it is due to the fact that it has a general agreement with Kellogg by which it is entitled to a license under all of the Kellogg inventions.

The important feature of the arrangement is that all the member oil companies are agreeing to employ Kellogg as their only engineering contractor for the building of plants within the licensed field. The purpose of this arrangement is partly to compensate the Kellogg Co. for the use of its inventions by the oil companies, and partly to prevent leakage of important confidential technique which would have to be disclosed to engineering contractors as well as to licensees. The oil companies reserve, however, the right to do their own construction work and to employ labor contractors. If they actually give Kellogg a smaller percentage of their own construction business than Kellogg enjoys in the outside field of third-party licensing, the member oil companies compensate the Kellogg Co. to some extent by giving him a share of their royalty participations.

These financial arrangements are extremely complicated but have been checked and reviewed with the greatest care by everyone concerned.

The Standard Oil Co. (Indiana) had some years ago made a pool of its catalytic cracking inventions with the Texas Co.'s similar inventions. For this reason Standard of Indiana desired to have an option to bring the Texas Co. into the agreement on the same basis as it came in itself, and the other parties were agreeable to this. In view of Shell's partnership with Jersey in the hydrogenation field outside of the U. S., it was desirable for Shell to be brought into the arrangement also, to avoid any difficulties in connection with the working out of the new processes in their bearing upon the hydrogenation processes. The other parties were agreeable to giving Jersey an option to bring the Shell company in on a basis similar to Jersey's own position.

All parties realize that Jersey has an interest in S. I. G., and that the royalties paid by the member companies to S. I. G. will go in part to I. G. and in part to Jersey. Our arrangements with the I. G. in connection with these processes are so complicated and in some respects so confidential, however, that we have always refused to discuss with the other parties the exact basis on which I. G. and ourselves participate in the S. I. G. royalties. An example of this complication is the following: In the application of our basic contract with the I. G. to the catalytic cracking situation, it was determined to be equitable that the I. G. should receive, over and above their normal participations, a certain substantial additional participation lying between \$1,000,000 and \$2,000,000—the former being our offer, and the latter their request. Efforts have been made

to settle this difference between the parties along various lines, and the line which now seems most probable is that the entire amount will be paid to the I. G. in oil, I. G. giving the D. A. P. G. an option to purchase this oil in Marks at a specified premium price. There is great opportunity for misunderstanding and injury to our interests from any discussion of the relations between ourselves and I. G. in connection with these S. I. G. contracts, and it is hoped that everyone will adhere consistently to the policy of ignoring completely the Jersey position in S. I. G. and treating S. I. G. as a separate entity, the internal affairs of which will not be discussed, either inside of our own organization or with others. Specifically, in the present instance all the member oil companies are accepting our assurance that Jersey will pay the S. I. G. exactly the same royalties which all the other operating companies pay to the S. I. G. They know that, to the extent this arrangement is tied in to the original Jersey hydrogenation arrangement with I. G., both Jersey and I. G. finally divide between them in some way the royalties paid in to the I. G.; but we have expressly declined to inform the other member oil companies what this division is, or the exact extent to which the interests of I. G. and Jersey in this catalytic arrangement overlap their earlier arrangements in connection with hydrogenation.

(3) *French Chemical Agreement.*—The last details in connection with this agreement were settled, and at the same time negotiations on a detailed contract with the Service de Poudres along the lines previously agreed upon were begun. Both the Service de Poudres contract and the French chemical company contract should be available in final form here in the near future.

(4) *English Chemical Situation.*—The amount of gas which would be produced by the new coils contemplated for Fawley would form a satisfactory basis for an ethyl isopropyl alcohol plant in England. At this moment there appears to be little likelihood, however, that permission will be given to install these new coils at Fawley, so the whole matter remains in abeyance for the time being.

(5) *International Ethyl.*—The putting into effect of the agreement reached with the Shell and Anglo-Iranian oil companies, and which was ratified by the Socony-Vacuum and Texas companies, for the formation of an International Ethyl Company, has been held up through difficulties in devising a corporate and contract structure which would not involve prohibition double taxation. One apparently satisfactory method of solving this problem was agreed upon in London with the representatives of the Shell and Anglo-Iranian companies. In brief, this outline is as follows: The international sales business will be handled by a British International Ethyl company, as first proposed. This company will buy its products originating in the U. S. from the Ethyl Export Company. The Ethyl Export Company will be revamped to include participations for Socony-Vacuum and Texas, in addition to General Motors and Jersey. The dividend-paying stocks of local Ethyl companies, such as the German and French companies, will be divided between the International Ethyl Co. and the Ethyl Export Co. in proportion to the relative participations of the American and foreign groups in the entire venture. The price at which lead exported from the U. S. on the order of the International Ethyl Co. is billed will be adjusted so that the profit accruing to the American and foreign groups from these international sales will be in the proportions agreed upon. The American group will hold voting shares in the British corporation, and the British corporation will hold the voting shares of the subsidiary companies, such as those in France and Germany. Any necessary readjustment of the participations, as between the American group and the foreign group, will be accomplished from time to time by changing the price of lead exported from the U. S., and if necessary by readjusting the percentages of holdings of dividend-paying stocks of foreign Ethyl operating companies. The above plan is under examination in the U. S. at the present time. It may be that some simpler method will eventually be found, but apparently this method will operate if no other can be found.

(6) *German Refinery.*—Plans are being developed to erect a combination hydrogenation and catalytic cracking plant for the production of 150,000 tons of aviation gasoline per annum from Ethanol distillate, supplemented by imported distillate. This plant will be erected in connection with a plant of similar capacity for the manufacture of motor gasoline from local tars, this second plant to be one of the stand-by plants of the Four Year Plan, to be financed entirely by the Government. These projects, if finally agreed upon, will be the first definite contribution of the D. A. P. G. to the development of Germany's autarchy program. The advantage of the catalytic plant is that it will reduce the investment and will provide an opportunity for the I. G. organization to follow, at first hand, commercial operations of catalytic cracking as a guide to their program of research and development work in this field in their laboratories.

The Shell have heard that the D. A. P. G. has under consideration the erection of these hydro plants and has raised the question of whether we should not invite them to participate, in line with our general policy of going hand in hand in any operations of the hydrogenation process for Government projects. Opinion is divided in the London Council as to whether we should or should not offer this participation to Shell, and it is not clear whether they would accept it if offered.

(7) *Synthetic Rubber*.—Dr. ter Meer expects to visit the U. S. in late November to review with us the program of producing synthetic rubber in the U. S. He hopes to have by that time the full approval of the Government on this matter. In general, the views of the I. G. are that the synthetic rubber development should be handled on the broadest possible basis here in the U. S. There are three angles to this matter, as follows:

(a) The manufacture of Buna "N" in moderate amounts—say 1,000,000 to 5,000,000 lbs. per annum—on a strictly commercial basis, this product bringing a premium price in fields in which it competes with similar synthetic products, such as du Pont's Neoprene.

(b) The production of a new variety of synthetic rubber, originating with the Development Co.; the new product may or may not be useful for tires, but would appear to have large commercial possibilities in other fields. This would also be a straight commercial venture, the probable cost of the product being below the current prices of rubber, the product being a cheap one to make, and having some premium qualities for particular uses.

(c) Production of Buna "S" for tires. Buna "S" is a product now used in Germany for tires. It can certainly be produced in the U. S. at a price competitive with the upper range of natural rubber prices, but probably not at a price as low as the cost of production of natural rubber. The commercialization of this process in the U. S. therefore involves problems other than straight commercial problems, and the following possibilities have been considered:

(1) Discussing the matter with the International Rubber Producers' cartel, possibly with a view to the sale of the control of the process directly to the Producers' Cartel.

(2) Discussions with principal American tire producing companies with a view to the formation of a group which would build and rely upon a large synthetic rubber plant as a protection against unwarranted increase in the prices of natural rubber.

(3) Either in connection with, or independently of (2), discussions with governmental representatives concerning the tariff protection of an American synthetic rubber industry intended to free the U. S. from the hold-up threat of the International Rubber Cartel, and to make the country more nearly self-sufficient from a defense standpoint.

Dr. ter Meer is very strongly of the opinion that the synthetic rubber process has an enormous potential value. The recent technical developments in Germany in connection with the manufacture of butadiene from petroleum gases, and the improved technique for the polymerization of the new synthetic rubber of the Development Co., constitute important progress in this field.

(8) *Aviation Gasoline*.—It was stated in London that there was a \* \* \*

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EXHIBIT No. 433

[Copy]

SEPTEMBER 8, 1941.

Proposed Sale of Hungarian Producing Properties.

HON. HENRY A. WALLACE,

*Chairman, Economic Defense Board,*

*Washington, D. C.*

MY DEAR MR. WALLACE: I beg to refer to my letter of August 26th regarding the offer of I. G. Farbenindustrie to pay \$24,000,000 in gold for our properties in Hungary. Owing to the importance of this matter to our company and



because the offer may be withdrawn or rendered impossible of consummation in a short space of time, I am writing to inquire whether you can give us any advice on the status of this matter with the Economic Defense Board. If I can be of any assistance by coming to Washington, I shall, of course, be glad to do so.

Very truly yours,

[Signed] ORVILLE HARDEN.

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[Copy]

AUGUST 28th, 1941.

Proposed Sale Hungarian Producing Properties.

HON. HENRY A. WALLACE,

*Chairman, Economic Defense Board, Washington, D. C.*

MY DEAR MR. WALLACE: Following my talk with you this morning and as indicated to you at that time, the representative of the I. G. Farbenindustrie who is now at Rio de Janeiro has informed us that his Company will be able to obtain approval of the German authorities to a payment of twenty-four million dollars in gold to be delivered to us in Lisbon. This payment would be in lieu of the offer outlined in the first paragraph of the memorandum enclosed with my letter to you of August nineteenth; in other words, the total payment would now be in gold, instead of part gold part foreign currencies and a promissory note.

We sincerely hope that the Economic Defense Board will be able to consider this matter promptly since we all realize that if a sale is to be made time is working against us.

Very truly yours,

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[Copy]

STANDARD OIL COMPANY,  
August 19th, 1941.

HON. HENRY A. WALLACE,

*Chairman, Economic Defense Board, Washington, D. C.*

DEAR SIR: We have had an attractive offer from a large German company for the purchase of oil-producing property which we own in Hungary. Application was made to the Treasury Department for a license to consummate the sale and our request was denied. Since your Committee is concerned with international economic activities, transactions in foreign exchange and foreign-owned or foreign-controlled property as well as international investments, we are referring our problem to you with the knowledge and approval of the Treasury. We enclose a memorandum which explains the proposed transaction as well as copy of our application to the Treasury.

As you will appreciate, the sale of our Hungarian property for a large amount of cash would be most advantageous to our many American stockholders whose interests we must protect. Furthermore, with German domination over Hungary, the property will be taken by the Nazis if and when needed regardless of ownership. We would not consider under any circumstances suggesting anything which might be against the best interests of the United States, but since Germany will take the Hungarian property whenever she needs it, it seems to us that the United States is the gainer to the extent of whatever assets we may be able to realize now from the Germans for the property.

The question has been raised as to the origin of the gold. On this point we have been assured that the gold to be delivered to us in payment at Lisbon would be a part of the original gold reserves of the Reichsbank, would be drawn wholly from within Germany, and probably would be largely made up of old German coins. By such payment Germany would of course be reducing her total stocks of gold.

I, or some other member of our board, shall be glad to go to Washington to discuss this matter further if you so desire, or to furnish any additional information which you may need.

Very truly yours,

(Signed) ORVILLE HARDEN.

## MEMORANDUM

Several months ago the I. G. Farbenindustrie A. G., of Germany, inquired over the telephone whether we would be interested in selling our producing property in Hungary. This property which produced, in 1940, 1,935,000 barrels of oil is owned by a Hungarian Corporation (MAORT) which is in turn 100% owned by the European Gas & Electric Company, an American corporation, subsidiary of Standard Oil Company (New Jersey) with a minority interest. After referring the matter to the State Department, we told I. G. that we would be willing to discuss the question with them, and they stated they would send a representative to New York for the purpose. Their representative, Dr. Feithol, proceeded to Rio de Janeiro but was unable to get a visa to visit the United States. Mr. Harden, Vice President of our company, went to Rio for the purpose of ascertaining what proposal would be made.

The last offer from the I. G. Farbenindustrie, which from our standpoint is highly acceptable, was to buy all of the shares issued by MAORT and to pay us the following:

Gold, probably mostly German coin-----	\$13, 500, 000
Delivery to be taken by us in Lisbon, Portugal; the gold to be purchased by I. G. from the Reichsbank, Berlin, and to come from within Germany.	
Swedish kronor, Swiss francs, and/or Central or South American currencies-----	5, 500, 000
The Swedish and Swiss funds are held by large Swedish and Swiss banks. The Central and South American currencies will be on deposit in banks in several countries.	
Promissory note of I. G. Farbenindustrie-----	5, 000, 000
This promissory note will be payable in U. S. dollars with interest three months after the end of the war and will recite that due payment of the instrument will be guaranteed by collateral represented by the American holdings and assets of the I. G. Farbenindustrie.	
	<hr/> 24, 000, 000

It will be noted the foregoing represents a total of \$19,000,000 that we would realize promptly. We understand that the Treasury would not at the present time buy gold delivered in Portugal but we would endeavor to arrange for shipment of the gold to New York by steamer and if the sale of our Hungarian property were approved by the United States Government in principle, then we would expect to be successful in obtaining a navicert from the British Government covering the consignment.

The offer outlined above was embodied in an application made by us to the Treasury Department under date of July 30th, copy of which is attached. On August 4th we received a reply from Mr. Foley, Acting Secretary of the Treasury, reading as follows:

"Reference is made to your letter of July 30th, 1941, with which you enclosed an application filed by the European Gas & Electric Company. This application has been assigned No. W-906.

"You are advised that the application in question has received careful consideration, but it is found that approval of such application would not be in accordance with the policy of the Treasury Department in administering the Executive Order. Accordingly, application No. W-906 is hereby denied."

It is our view that on the basis of a satisfactory offer such as proposed, the sale of our Hungarian property would be desirable for the following reasons:

1. With German domination over Hungary the property would be taken by Germany if and when needed regardless of ownership;

2. If Germany needs the Hungarian oil, the fields will be exploited on the basis of producing the maximum quantity of oil over the shortest possible time, so that after a few years the fields would have relatively little value;

3. In the event of the war ending fairly soon the European countries would not be in position financially to permit of profits being taken out so that from the standpoint of the American stockholder it is difficult to visualize that any dollars would be realized from our Hungarian venture for a long time to come.

Our Company would not consider under any circumstances suggesting anything which might be inimical to the interests of the United States. If, however,

the premise is accepted that Germany will take the Hungarian oil if and when needed, then it seems to us that the United States is the gainer to the extent of whatever assets we may be able to realize now from the Germans for the property. This premise was accepted by Mr. Ray Atherton, Chief of the Division of European Affairs, Department of State, with whom the matter was first discussed several months ago.

AUGUST 19, 1941.

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EXHIBIT No. 434

AUGUST 1, 1939.

MEMORANDUM—DESIGN OF CATALYTIC CRACKING PLANT FOR D. A. P. G.

DD-136.29

A meeting was held on July 25, 1939, with Messrs. Bogner, Dewdney, Forrest, and Murphree in order to discuss the method of handling the D. A. P. G. catalytic cracking plant. Mr. Bogner advised that the D. A. P. G. will own and erect the plant. The process design will be made in this country and detailed by Uhde, which is a firm I. G. has formed to carry out construction. The I. G. will license the plant to D. A. P. G. The royalty for this licensing has not been determined as yet.

Economic studies carried out in the early stages of this development indicated that catalytic cracking would be a cheaper method than hydrogenation. Moreover, it was felt that this plant would supply the Jersey interest with some commercial experience at an early date. The I. G. authorities were interested in having information on this new process. For this reason the German Government was approached on the basis of using catalytic cracking and approval obtained. Since that time the costs for catalytic cracking have been shown to be higher and there is some question as to whether this method is still as attractive. It was pointed out in the meeting that this plant is based on fixed catalyst operation which will not be used in this country and Jersey therefore does not gain any commercial experience on the type of process we propose to use. Mr. Dewdney and Mr. Bogner felt, however, that the German authorities would not wish to go ahead on the powdered catalyst type of operation since no 100 B/D experience was available and, moreover, would not change over to hydrogenation inasmuch as they were desirous of obtaining information on catalytic cracking. The most serious objection to use of hydrogenation is that during time of emergency when the plant would be most urgently needed, domestic crude must be processed. Hydrogenation will make only 68 octane number on this crude whereas catalytic cracking would operate satisfactorily as on the Venezuelan stocks normally charged. It was also pointed out that this project has suffered so much delay that the Government might cancel the project if they were approached with another revision.

It was therefore decided to proceed with the fixed catalyst plant. Mr. Murphree felt that use of the tubular type reactor used with the salt bath should not be considered inasmuch as we have no experience on use of heat transfer mediums of this kind. The greatest obstacle to design of this plant at this time is in lack of data on regeneration time required for a given cracking period. Operations conducted to date on the 100 B/D fixed plant at Baton Rouge have concentrated on cracking and no thorough study has been made of regeneration. None of the regeneration times on the 100 B/D plant have been down to the design figure of  $1\frac{1}{2}$  times as long as the cracking period. It was agreed that the Development Division would study the data available on regeneration of synthetic catalyst in small units and in the 100 B/D plant and decide whether experimental work was required and if so whether it should be conducted in a small unit or in the 100 B/D plant.

The I. G. gentlemen plan to leave New York on August 4th and will spend the following week in the South and Indiana observing various operations. The following week, beginning August 14, they will return to New York for discussions on the detailed design of the plant. Subsequently one representative will remain in this country until the process design is completed. A flowsheet will be prepared on the yields and operating conditions by Kellogg which will be checked by the Development Company. This should be available for discussions during the week of August 14. The process design work

will be carried out by Kellogg with detailed check by the Development Company. This checking will be confined to the catalytic cracking equipment proper in the plant. We advised that Development would not be able to supply an engineer to assist in the design of the unit until after August 14, although we would be able to render assistance in checking the process conditions prior to that time.

There was some discussion as to what information should be supplied by Kellogg to Uhde. The details of this were left open for future study, but in general it was agreed that a process flowsheet should be submitted together with sketches on the novel pieces of equipment, such as the reactor and waste heat boiler. It will also be necessary to supply certain information on line sizes, etc., in order to obtain low pressure drop in the regeneration gas circuit. It was also agreed that the final drawings and specifications on certain equipment as prepared by Uhde would be referred back to Kellogg and Jersey for recheck. We agreed that we would advise the D. A. P. G. which items should be included in this category.

The design of the catalytic unit will include the vaporizing coil and flash drum and will assume that the oil is supplied cold. Handling of the products will include a fractionating tower, separator on the tower overhead, and compressor for the separator gas. The capacity of the plant will be as shown on the flowsheet prepared by Mr. Dewdney, which is attached to the memorandum covering the meeting with the I. G. and D. A. P. G. representatives on July 28. This capacity is roughly 4,800 B/CD to the reactor. This flowsheet shows certain figures for optional operation on Mexican crude, which it was agreed should be disregarded.

The memorandum covering the general meeting on July 28 contains additional detailed information covering the operating conditions, catalyst, and feed stock for the design of this unit.

E. J. GOHR.

EJG:HCW

cc: Mr. E. V. Murphree, Mr. D. A. C. Dewdney, Mr. Bogner, Mr. Campbell, Mr. Hemminger.

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EXHIBIT No. 435

C. E. MEYER, *Yokohama*.  
P. W. PARKER, *New York*.

*Aug. 10/39.*

Refer to your telegram of Aug. 9th as between *one* placing our products with joint sales company-s on consignment and *two* selling direct to wholesale company-s. I am disposed to favor two for following reasons: *A* Set-up would be less (than) that of a monopoly; *B* appears to afford greater degree of preservation of our brands and identify, and would not sever entirely our contacts with our dealers; *C* would avoid any implication we are reconciled to diminishing position and keep intact essential features of our organization and facilities for possible better times. However, since it is clear Government plans for long period economy-s regardless of length of present hostilities and intends to cut imported finished products to the full extent of artificial product-s sold, we consider it prudent to give serious consideration (to) strengthening our position by sharing our future with Mitsui as close associate-s. Doubt whether present time is favorable for friends to develop such an arrangement in view of feeling here but, considering only our own interest, I (we) think such move now appropriate.

C. E. MEYER.

Copy to Mr. W. S. Farish, Mr. Orville Harden, Mr. R. W. Gallagher, Mr. W. E. Pratt.

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[Incoming cablegram]

From: Yokohama.  
To: New York.

SEP. 1/39.

Refer to our telegram of Aug. 24th. We would like to be in a position when asked for our decision by fuel bureau to be able to give indication of our contemplated line of action; friends have not been called and it is possible bureau will press us before calling on them. In view of the more complete informa-

tion given by bureau as per our telegram Aug. 24th we are now inclined to think little to choose between consignment (of) products (for) joint sales company-s and selling to wholesale company-s but we strongly feel at this juncture we should initiate exploring discussions with Mitsui to determine their attitude towards some arrangement which might enable us to secure permanent position within new set-up rather than occupy position from which can easily be eliminated at convenience of Government. We have in mind some kind of merger with Mitsui which would make us eligible for participation in joint sales company-s similar (to) Mitsubishi Goshi Kaisha Associate-s; we are not confident Mitsui will be interested now especially in view of A Government policy of reducing imports of finished products, B uncertainty (of) supplies owing to possible action (of by) U. S. Government after the expiration of abrogated treaty but we have easy way (of) approach and would like to sound out possibilities. If you share our feeling we recommend opening conversations (with) Mitsui at an early date in order that if there are any prospects of such cooperation Government and joint sales company-s may plan accordingly at the outset instead of later making room for us we also feel if we delay talk-ing with them they may be less interested particularly if threat of interrupted supplies after January intensified we have not shown this telegram to friends but with your approval shall do so before taking up talk with Mitsui.

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OCTOBER 10, 1939.

Re: Japan.

Mr. H. WILKINSON,  
*Asiatic Petroleum Company,*  
 50 West 50 Street, New York City.

DEAR WILKIE: Referring to our conversation of September 26th, I enclose a memorandum which represents the combined views of Socony-Vacuum, Standard of New Jersey, as well as Standard-Vacuum.

Sincerely yours,

(Signed) P. W. PARKER.

P. W. P.: H.

Enclosure.

CC: Mr. Orville Harden.

Mr. H. F. Sheets.

Mr. K. F. Coe.

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SEPTEMBER 25, 1939.

#### MEMORANDUM RE JAPAN

In March 1934 Socony and Jersey Boards both approved of Standard-Vacuum recommendations to enter into formal negotiations for a merger with Mitsui in Japan. This was a step that had been considered by the old Standard of New York interests for some years and had on several previous occasions been informally discussed with Mitsui.

These negotiations were proceeding satisfactorily when the Government announced the Petroleum Control Law which was finally promulgated July 1st, 1934. Even then the negotiations were not discontinued but late in the summer or early fall of 1934 Sir Henri Deterding came to New York and as a result of discussions he had with Standard of New Jersey it was the feeling that all possible resistance should be effected by a united front of Shell and Standard interests to oppose the growing development of nationalism in the petroleum industry and particularly to combat Governmental moves in various countries to construct refineries, the feeling being that if all countries adopted this attitude there was not sufficient capital in the oil companies to finance it. As an out-growth of this situation it was decided that Standard-Vacuum should withdraw from negotiations with Mitsui, and while it involved considerable embarrassment to do so, it was finally done on the ground that the Government's Petroleum Control Law had so changed conditions that it was felt the matter should be held in abeyance.

Messrs. Godber, Walden and Parker then went to Japan in November of 1934 and negotiated continuously with the Japanese Government until the following April. Certain principles were arrived at which enabled us to con-

tinue business but the question of the six months' excess storage for emergency stocks was still left unsolved.

The Government continued to press this matter of emergency stocks, emphasizing that Shell and Standard-Vacuum were operating in Japan as law breakers so it was finally agreed that we endeavor to work out jointly a deal whereby Mitsui would construct the storage to provide for both Shell and Standard-Vacuum requirements.

These negotiations brought us along to the summer of 1937 when the Japanese started their war with China. The pressure became increasingly great on the part of the Government but we were successful in manœvering the negotiations to a point where Mitsui were considering our proposal, when the war started. After that date, whenever the Government brought up the matter, we were in a position to say that we were awaiting a reply from Mitsui. With the uncertainties which Japan faced from that moment, and which have increasingly developed since that time, the Government has never pressed us to comply with this storage provision, and at this particular point the matter rests today—where it did in early July 1937.

While the Government has continued to stress that we and Shell have never complied with the storage law, it has been obvious that they need us, which in our opinion, is the only reason we are still permitted to do business. However, it should be emphasized that they have been constantly working to an objective which will permit them to eliminate imports of finished products without disturbing their petroleum supplies. They have done this by building up their refinery capacity all of which is in the hands of the Japanese; also by synthetic processes so that when they are ready they can refuse any further quotas to Shell and ourselves, always pointing out that we are law breakers. In the writer's opinion, we can expect to see a further substantial cut during 1940, in Shell and our quotas.

A detailed review of our records discloses that on many recurring occasions the opinion within our own group has been that Standard-Vacuum interests would best be served by some association with Mitsui.

A similar issue arose when the Manchukuo Monopoly was declared. So far as Standard-Vacuum interests alone were concerned, the opinion was that their interests would have been best served by some arrangement to continue business with the Monopoly. However, in view of Jersey's strong feelings with respect to monopolies and their united policy on this issue with Shell, we again deferred to Shell's wishes and withdrew from that market and refrained from any dealings with the Monopoly.

When the Control Law went into effect the Shell and Standard-Vacuum combined share of the trade was:

	<i>Bbls. 42's</i>	<i>Combined % total trade</i>
1933 Gasoline-----	3,040,000	53.3
1934 Kerosene-----	940,000	51.6
1934 Heavy Oil, excl. M. B. K.-----	3,512,000	48.1
1934 Heavy Oil, incl. M. B. K.-----	4,352,000	59.6

Based on twice the quotas for the Last Half of 1939, the position is:

	<i>Bbls. 42's</i>	<i>Combined % total trade</i>
Gasoline-----	2,035,000	36.06
Kerosene-----	565,000	31.59
Hvy. Oil (excl. M. B. K.)-----	2,350,000	30.40
Hvy. Oil (incl. M. B. K.)-----	3,530,000	45.66

The above represents the following percentage decline:

Gasoline-----	17.2
Kerosene-----	20.0
Hvy. Oil excl. M. B. K.-----	17.7
Hvy. Oil incl. M. B. K.-----	13.9

The political developments in the East, backed up by the actual results as demonstrated by above figures, undoubtedly had an effect upon Shell's local representative in Japan. When we got the first intimation of the Government's next contemplated step to further rationalize industry in late June 1939 by compulsory pooling of all Japanese companies into one general sales company, and the formation of all distributors into another company, the Shell repre-

sentative then joined ours in a joint recommendation to approach Mitsui to work out some arrangement which would strengthen our fast dwindling position and salvage what was possible of the combined interests in Japan.

The matter was discussed in London with Shell at that time, who were just as adamant as ever against any association with Japanese capital.

While considerable difference of opinion existed in our own group originally on this question, it is fair to state that the developments of the last year, and particularly recent months, has brought about a practically uniform opinion that any future which Standard-Vacuum may have in Japan would be materially strengthened and our life prolonged by a mutually satisfactory association with Japanese capital.

During the summer this question has been discussed with representatives of other foreign firms, such as General Motors, General Electric, and S. K. F. (Swedish), all of whom have been unanimous in confirming the view that foreign business in the future in Japan would be on a much sounder basis in association with Japanese capital.

The purpose of this memorandum is to have clearly recorded the views of our group, as we feel the record shows we have consistently deferred to the wishes of our Shell associates against increasing evidence that we were acting contrary to our own best interests so far as the principle involved of protecting our investments was concerned.

Our group feel this more strongly today than at any time in the past. In our best judgment, even at this late date, the best protection of our own interests indicates that we should at least explore the possibilities and if promising, endeavor to make the best deal we can with Mitsui to salvage what is possible. However, as purely a matter of expediency and fully realizing the present political situation in which our Shell friends find themselves, we are again willing to defer to their wishes and postpone any approach to Mitsui for the time being. We feel that our Shell friends should thoroughly appreciate that we are acting contrary to our own best judgment of the sound business action we should take, and therefore the question is one that we will feel free to reopen for discussion at any time in the future.

PWP: M

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#### EXHIBIT No. 436

From: Yokohama.  
To: New York.

SEPT. 11/39.

Refer to your telegram of Sept. 7th our opinion is: *A.* If we are left on outside when joint sales company has been formed we are likely to be kept in this position and progressively eliminated, therefore, if we could now advise Government we are considering alteration of our status (to) become eligible as members of sales company we could make most of any chances we may have and possibly influence Government action to our advantage; please see last part our telegram of June 27th. Also as we fear United States Government in the near future may have grounds for action unfavorable to American-Japanese trade we consider timely for us to organize with Japanese partners whose influence would be valuable later towards our reestablishment after any interruptions (in/of) trade as only Japanese controlled companys can participate in sales company we feel anything less than merger would not meet the situation; *B.* Unless two companies further combined (with) Japanese partners they could not be members of sales company; *C.* This plan would be practicable and would have merit that foreign companys cooperative in rationalization of industry, etc., but we should not acquire any more permanency as combination would be just as vulnerable to eliminating as separate company. Without informing friends suggestion from you have asked them to study its possibilities; we should much prefer to avoid any permanent combine with friends which would in our opinion multiply complications caused (by) (for) political reasons. We concur with views your telegram of Sept. 7th problem here is still mutually and any benefits sought through association with Japanese capital can be mutual. I (we) see no reason (for/why) embarrassment in again discussing the matter at this time since it is occasioned by impending reorganization (of) oil industry furthermore officials attitude not now unfriendly to British.

## EXHIBIT No. 437

## EXTRACT FROM EXECUTIVE COMMITTEE MEMORANDA

Date: February 3, 1941.

Present: OH, RWG, WEP, FWA, TCMcC.

Mr. Harper reported, for the information of the Committee, that supplies of aviation gasoline are being made available by our interests to the "Littoria" (Italian Aviation Line) at Rio de Janeiro. A local, apparently Nazi-supported, newspaper in Rio has publicized this fact as indicating that the supply of material quantities of aviation gasoline at that place to the Italian line is enabling a movement of mail, et cetera, from Axis powers to the Western Hemisphere around the British blockade, and speculates whether the British would be impelled to interfere with the tank steamer bringing that material from the Caribbean to Rio.

## EXHIBIT No. 438

## EXTRACT FROM EXECUTIVE COMMITTEE MEMORANDA

Date: February 17, 1941.

Present: WSF, OH, RWG, WEP, DLH.

Mr. Harper reported that after Mr. Atherton of the U. S. State Department had been informed regarding the aviation supplies shipped from the Caribbean to Rio de Janeiro for account of the Italian Air Line (see Committee Memorandum of February 3), he discussed the question with Secretary Hull, who advised that if such shipments were contemplated from the United States an export permit would be refused. However, since the shipments emanated from outside the United States, Mr. Hull said he could only express the hope that it would not be necessary for such shipments to originate from any other place in the Western Hemisphere.

The present inquiry involves 2,500 barrels (six months' requirements) of aviation gasoline for Ali Littoria, to be delivered into customer's storage in bond in Rio de Janeiro. While there is no contract covering this business, the customer has been a regular customer. In view of the complications surrounding this matter, Committee was of the opinion that the quotation should be given f o. b. Aruba, and not c. i. f.

Mr. Harper, with reference to Committee memorandum of February 10, reported receipt of a cable, signed jointly by Messrs. C. Giannioti and G. Ringler, advising it is absolutely necessary for them to insist that the board of Societa Italo-Americana be Italianized and recommending that Messrs. Terrizzani and Titi be elected to membership thereon, or, if the stockholders wished, to leave the board membership as it is except for the resignation of Mr. R. F. Hawkins. Committee felt the latter proposal would be acceptable, i. e., to leave the board as it is except for the retirement therefrom of Mr. Hawkins.

## EXHIBIT No. 439

## EXTRACT FROM EXECUTIVE COMMITTEE MEMORANDA

Date: March 7, 1941.

Present: WSF, WEP, FWA, FH.

Mr. Pratt summarized, for the information of the Committee, the substance of several cables which had been exchanged between Mr. Harper's office and Brazil and memoranda of contacts with the State Department with respect to the supply of petroleum products to Ali Littoria, Italian Air Line, with a terminal at Rio de Janeiro (see Committee memorandum of February 17). He stated that Mr. W. M. Anderson, after having been advised that our interests were not in a position to provide transportation for supplies from Aruba into Company interests' tankage at Rio and that Littoria, if they did not buy from local duty paid stocks, would be obliged to purchase f. o. b. Aruba, had cabled that local duty-paid stocks were sufficient to enable Standard Oil Company of Brazil to supply the customer for at least six months longer. He said Mr. Michler is inquiring whether the State Department should be informed of all the current developments in this situation. Committee was not inclined to feel this was necessary.



Mr. Holman, with reference to Committee memorandum of February 26, reported a cable had been received from Mr. F. Klasen advising he believed the authority given him on February 20, 1941, was sufficient to now apply to Roumania under the present state of affairs there. Committee did not agree, if current reports could be relied upon, that the situation in Roumania constituted a state of official control or occupation by Germany, and hence accepted Mr. Holman's suggestion that Mr. Klasen be advised the authority referred to in the February 20 cable does not apply with respect to Roumania until the circumstances mentioned therein actually exist there.

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EXHIBIT No. 440

IN THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT  
OF NEW JERSEY

Civil Action No. —

UNITED STATES OF AMERICA

PLAINTIFF

v.

STANDARD OIL COMPANY (NEW JERSEY)  
STANDARD OIL COMPANY OF NEW JERSEY  
STANDARD OIL DEVELOPMENT COMPANY  
STANDARD OIL COMPANY OF LOUISIANA  
STANDARD CATALYTIC COMPANY  
JASCO, INC.  
HYDRO ENGINEERING AND CHEMICAL COMPANY  
WALTER C. TEAGLE  
W. S. FARISH  
FRANK A. HOWARD  
P. L. YOUNG  
WILLIAM E. CURRIE  
WALTER SCHAEFER  
HAROLD A. KOECHLING

DEFENDANTS

FINAL JUDGMENT

The complainant, United States of America, having filed its complaint herein on \_\_\_\_\_; the defendants having appeared and filed their answers to such complaint denying the substantive allegations thereof; all parties hereto by their attorneys herein having severally consented to the entry of this final decree herein without trial or adjudication of any issue of fact or law herein and without admission by any party in respect of any such issue;

Now, therefore, before any testimony has been taken herein, and without trial or adjudication of any issue of fact or law herein, and upon consent of all parties hereto, it is hereby

ORDERED, ADJUDGED AND DECREED as follows:

I

That this Court has jurisdiction of the subject matter herein and of all of the parties hereto; that the petition states a cause of action against each of the defendants under the Act of Congress of July 2, 1890, entitled "An Act To Protect Trade and Commerce Against Unlawful Restraints and Monopolies" and the acts amendatory thereof and supplemental thereto.

II. DEFINITIONS

When used in this decree the following terms have the meanings assigned respectively to them below:

*Corporations and Associations*

"Standard" means Standard Oil Company, a corporation organized and existing under the laws of the State of New Jersey, with its registered office in Flemington, New Jersey, and having an office and place of business at New York, N. Y.

"Jersey" means the system composed of Standard and all corporations, companies, or associations owned or controlled by it, directly or indirectly.

"Delaware" means Standard Oil Company of New Jersey, a corporation organized and existing under the laws of the State of Delaware and having its principal office and place of business at New York, N. Y., which corporation is a wholly owned operating subsidiary of Standard.

"Development" means Standard Oil Development Company, a corporation organized and existing under the laws of the State of Delaware and having its principal office and place of business at New York, N. Y., which corporation is a wholly owned subsidiary of Standard.

"S. I. G." means Standard Catalytic Company (originally known as S. I. G. Company, subsequently as Standard-I. G. Company and now known as Standard Catalytic Company), a corporation organized and existing under the laws of the State of Delaware and having its principal office and place of business at New York, N. Y., all of the capital stock of which is now in the name of Standard, which controls the corporation.

"I. G." means I. G. Farbenindustrie Aktiengesellschaft, a corporation organized and existing under the laws of the German Reich and having its principal office and place of business at Frankfurt am Main, Germany, and all corporations, companies, or associations owned or controlled by it, directly or indirectly.

"DAPG" means Deutsch-Amerikanische Petroleum Gesellschaft, a corporation organized and existing under the laws of the German Reich and having its principal office and place of business at Hamburg, Germany, which corporation is a subsidiary of Standard.

"Jasco" means Jasco Incorporated, a corporation organized and existing under the laws of the State of Louisiana and having its principal office and place of business at Baton Rouge, Louisiana, all of the capital stock of which is now owned by Development, which controls the corporation.

"Kellogg" means the M. W. Kellogg Company, a corporation organized and existing under the laws of the State of Delaware and having its principal office and place of business at Jersey City, New Jersey.

"Shell" means the Royal Dutch Company, a corporation duly organized and existing under the laws of Curacao, N. W. I., and Shell Transport and Trading Company, a corporation duly organized and existing under the laws of the United Kingdom, and all corporations owned or controlled, directly or indirectly, by both or either of them.

"Indiana" means Standard Oil Company, a corporation organized and existing under the laws of the State of Indiana and having its principal office and place of business at Chicago, Illinois.

"Universal" means the Universal Oil Products Company, a corporation organized and existing under the laws of the State of Delaware having its principal office and place of business at Chicago, Illinois.

"C. R. A." means the association of Development, Shell Development Company, Texaco Development Corporation and Indiana, pursuant to memoranda dated October 12, 1938, August 15, 1939, April 17, 1940, and July 9, 1940, respectively, covering certain processes including catalytic refining, hydroforming, and hydro catalytic reforming for the refining of petroleum and its products.

*Contracts*

(Wherever an agreement is defined below the definition shall be taken to include all amendments, renewals or extensions of the particular agreement defined.)

"The Division of Fields Agreement"<sup>1</sup> means an agreement, a copy of which is attached hereto and made a part hereof and marked Exhibit A, dated November 9, 1929, between Standard and I. G.

"Four Party Agreement"<sup>2</sup> means an agreement, a copy of which is attached hereto and made a part hereof and marked Exhibit B, dated November 9, 1929, between Standard, Delaware, I. G. and S. I. G.

<sup>1</sup> See Exhibit No. 362, appendix, p. 4572.

<sup>2</sup> See Exhibit No. 360, appendix, p. 4561.

"Coordination Agreement"<sup>3</sup> means an agreement, a copy of which is attached hereto and made a part hereof and marked Exhibit C, dated November 9, 1929, between Standard and I. G.

"German Sales Agreement"<sup>1</sup> means an agreement, a copy of which is attached hereto and made a part hereof and marked Exhibit D, entered into on November 9, 1929, between I. G. and Standard, and also an agreement dated January 4, 1935, between I. G., Standard and N. V. De Bataafsche Petroleum Maatschappij, a copy of which is attached hereto and made a part hereof and marked Exhibit E.

"Hydrocarbon Synthesis Agreement" means, collectively, the agreements dated October 7, 1933, providing for the exploitation of the hydrocarbon synthesis process, in which the principal parties in interest are Jersey, I. G., S. I. G., Shell, Kellogg and Ruhrchemie Aktiengesellschaft.

"Polyco Agreement" means an agreement dated September 1, 1935, providing for the licensing of patents covering gas polymerization processes, in which the principal parties in interest are Kellogg, The Texas Company, Phillips Petroleum Company, Inc., Indiana, Development, Gasoline Products Company, Inc., and Polymerization Process Corporation.

"Junk Agreement" means, collectively, the agreements dated October 27, 1933, and January 1, 1938, between Standard, Development, Union Oil Company of California, Indiana and Kellogg, providing for an association between the parties covering certain processes including desphalting, dewaxing and solvent extraction processes for the refining of petroleum and its products, using propane and hexane and the phenol process separately or in combination.

"Sulphuric Acid Alkylation Agreement" means, collectively, the agreements dated April 12, 1939, between Development, Texaco Development Corporation, Shell Development Company, Anglo-Iranian Oil Company, Ltd., and Universal, providing for an association between the parties covering the combination of iso-paraffin and unsaturated hydrocarbons by the use of sulphuric acid as a catalyst.

"Hydrogenation Plan" means those several documents and agreements, contained in a printed volume entitled "Plan for Mutual Licensing of the Hydrogenation Process" and dated \_\_\_\_\_, 1935, and covering the licensing of the hydrogenation process in the United States.

"Hague Memorandum" means an agreement, a copy of which is attached hereto and made a part hereof and marked Exhibit F, dated September 25, 1939 (effective as of September 1, 1939), signed at the Hague, Netherlands, by F. A. Howard for Development and Dr. F. Ringer for I. G., and thereafter adopted by Jersey and I. G., providing for the readjustment of their rights in Jasco.

"Trust Agreement" means an agreement, a copy of which is attached hereto and made a part hereof and marked Exhibit G, effective as of September 1, 1939, whereby I. G. delivers to trustees 50% of the issued capital stock of Jasco.

"Parafflow Agreement" means an agreement, a copy of which is attached hereto and made a part hereof and marked Exhibit H, dated April 1, 1932, between S. I. G. Development, I. G., and DAPG, relating to the exploitation of patent rights covering the product called Parafflow, an additive agent or material added to petroleum products to act as a pour point depressant.

"Mid-Continent Agreement" means an agreement, a copy of which is attached hereto and made a part hereof and marked Exhibit I, dated May 17, 1932, between Development and L. Sonneborn Sons, Inc., a Delaware corporation, corporation, relating to the exploitation of patent rights covering the product called Parafflow, an additive agent or material added to petroleum products to act as a pour point depressant.

"Sonneborn Agreement" means an agreement, a copy of which is attached hereto and made a part hereof and marked Exhibit J, dated April 9, 1934, between Development and L. Sonneborn Sons, Inc., a Delaware corporation, relating to the exploitation of patent rights covering the product called Parafflow, an additive agent or material added to petroleum products to act as a pour point depressant.

"Socony-Vacuum Agreement" means an agreement, a copy of which is attached hereto and made a part hereof and marked Exhibit K, dated January 1, 1938, between Development, Socony-Vacuum Oil Company, Incorporated, a corporation of New York, and its subsidiaries, and Monsanto Chemical Company, a corporation of Delaware, and its subsidiaries, relating to the exploitation

<sup>1</sup> See Exhibit No. 363, appendix, p. 4574.

<sup>2</sup> See Exhibit No. 361-A, appendix, p. 4572.

of patent rights covering the product called Paraflow, an additive agent or material added to petroleum products to act as a pour point depressant.

"Pölitiz Agreement" means an agreement dated January 17, 1939, between I. G., S. I. G., Standard, and Delaware relating to the purchase of shares of Hydrierwerke Pölitiz, A. G., with funds advanced by DAPG, said shares to be held by I. G. and voted in accordance with the interests of DAPG.

"Methanol Agreement" means an unsigned memorandum, a copy of which is attached hereto and made a part hereof and marked Exhibit L, dated September 24, 1936, setting forth an agreement between Development and I. G. relating to licenses in the United States and Germany under their rights with regard to various processes, including processes for the manufacture of certain alcohols and chloride compounds.

"Trust Agreement of August 31, 1939" means an agreement, a copy of which is attached hereto and made a part hereof and marked Exhibit M, dated August 31, 1939, between Frank A. Howard, and W. E. Currie and P. L. Young as Trustees.

### *Processes, Fields, and Products*

"Hydrocarbon Field" means the definition elaborated in the Four Party Agreement (Exhibit B attached hereto) to define the processes placed by I. G. in the control of Jersey, generally comprising all operations carried on by the oil industry as distinguished from the chemical industry, describing such processes by the materials to be treated, and the products to be produced, and by a general description of other products according to the uses to which they are susceptible or for which they are intended.

### *Definitions*

"Acrylonitrile" means the chemical compound having the formula  $\text{CH}_2\text{CHCN}$  and the homologs thereof.

"Butyl" means the product of copolymerization of isobutylene and a small quantity of adiolefin.

"Buna-N" means Perbunan and is the product of copolymerization of butadiene and acrylonitrile.

"Buna-S" means the product of copolymerization of butadiene and styrene.

"Butadiene" means the hydrocarbon diolefin compound the chemical formula for which is  $\text{C}_4\text{H}_6$  and its homologs.

"Methanol" means methyl alcohol.

"Polybutenes" means the product of polymerization of isobutylenes having a molecular weight of 800 or over and includes Vistanex, Oppanol and Paratone.

"Styrene" means the chemical compound, the chemical formula for which is  $\text{C}_6\text{H}_5$  and its homologs.

"Toluene" means tolnol and is the aromatic hydrocarbon compound, the chemical formula for which is  $\text{CH}_3\text{C}_6\text{H}_5$ .

"Acetylene Arc" process means a process for producing acetylene from natural or refinery gases by means of an electric arc.

"Alkacid" process means the process of that name used for scrubbing gases for the removal of hydrogen sulphide and carbon dioxide and other substances.

"Hydrocarbon Synthesis" means any process for the synthetic production of hydrocarbons directly by conversion of hydrogen and carbon monoxide and/or carbon dioxide.

"Hydroforming" means the processes of refining light distillates of petroleum utilizing a catalyst in the presence of hydrogen but resulting in no net consumption of hydrogen, referred to in the various C. R. A. Memoranda, or licenses, as Hydroforming or Hydro Catalytic reforming.

"Hydrogenation" means a process whereby any carbonaceous materials are subjected to the action of hydrogen in the presence or absence of a catalyst to a degree or extent or in a manner to secure definitely determinable hydrogenation.

"Methane Steam" process means any process for the manufacture of hydrogen by reacting methane with steam in the presence of a catalyst.

"Paraflow" means a pour depressant for lubricating oil, being a synthetic product obtained by the aluminum chloride condensation of chlorinated paraffin wax on naphtholene.

### *General*

"Patents" means (1) all United States patents existing on the date of the entry of this decree, including renewals, extensions, or reissues thereof, which

any of the defendants, or any of their employees, agents or nominees, hold title to, or any beneficial interest therein, or a right or power to license or sublicense thereunder, and (2) all other United States patents which any of the defendants or any of their employees, agents or nominees, holds title to, or any beneficial interest in, or a right to license or to sublicense thereunder, not existing on the date of the entry of this decree but resulting thereafter from applications filed in the United States by any of the defendants, their employees, nominees or agents, prior to said date, and (3) all other United States patents, which any of the defendants or any of their employees, agents or nominees, holds title to, or any beneficial interest in, or a right to license or to sublicense thereunder, not existing on the date of the entry of this decree but resulting thereafter from the registration in the United States by any of the defendants, their employees, nominees or agents, of any foreign patents existing as foreign patents on the date of the entry of this decree or issued thereafter as a result of applications filed outside the United States prior to said date. Patents as defined in this paragraph shall include all such patents involving in any way the compounding, manufacturing, processing, treatment or utilization of any of the products or processes referred to in this decree.

"Future patents" means all United States patents, including renewals, extensions or reissues thereof, which any of the defendants, or any of their employees, agents, or nominees, at any time, including after the date of the entry of this decree, holds title to, or any beneficial interest in, or a right or power to license or sublicense thereunder, other than those included under the definition of "patents" above given.

"S. I. G. Patents" means all patents which S. I. G. holds title to, or a right to license or to sublicense under, on the date of the entry of this decree, as well as all patents, title to which, or a right to license or to sublicense under, is thereafter transferred to S. I. G. as a result of the operation of this decree.

"Jasco Patents" means all patents which Jasco holds title to, or a right to license or to sublicense under, on the date of the entry of this decree, as well as all patents, title to which, or a right to license or to sublicense under, is thereafter transferred to Jasco as a result of the operation of this decree.

"Know-how" means all the practice, experience and technical knowledge, useful to a licensee in his operations under any of the patents licensed under the terms of this decree, which is in the possession of any of the defendants on the date of the entry of this decree, or, useful to a licensee in his operations under any patents issued after said date which are subject to licensing under the terms of this decree, in the possession of any of the defendants on the date of issue of each of such patents: (1) which originated with Jersey or I. G.; (2) which did not originate with Jersey or I. G., but the transfer of which by the defendants is not prohibited by any existing contracts.

"Present Emergency" means the period of time extending from the date of the entry of this decree through the first six months after the cessation of hostilities between the United States and Germany, Italy, and Japan.

"Subsidiary" means any corporation, company or association, more than 50% of the outstanding shares of stock of which is owned outright or beneficially by some other corporation, company or association, or the management or policy of which is directed, directly or indirectly, by some other corporation, company or association.

"Control" means, when used as noun or verb, the power in, or the exercise, directly or indirectly, the management or policy of some other corporation, company or association.

### III

The Four-Party Agreement, the Division of Fields Agreement, the Coordination Agreement, the Hydrogenation Plan, the Paraflow Agreement, the Mid-Continent Agreement, the Sonneborn Agreement, the Socony-Vacuum Agreement, the Hague Memorandum, the Trust Agreement, the Methanol Agreement, the Hydrocarbon Synthesis Agreement and the Trust Agreement of August 31, 1939, and all contracts, agreements, understandings, arrangements, plans or programs of every nature whatsoever between Standard and I. G. or any of their subsidiaries, with the exception of the German Sales Agreement and the Politz Agreement, are hereby adjudged to be unlawful under the Antitrust Laws of the United States; and the defendants, their directors, officers, agents, employees, successors, and subsidiaries, and all persons acting under, through, or for any of them, are hereby individually enjoined and restrained from the further performance of any of their provisions.

## IV

The defendants, their directors, officers, agents, employees, successors, and subsidiaries, and all persons acting under, through or for any of them, be and they hereby are individually ordered, directed and required:

(1) To discontinue completely all existing relations with I. G., except those required by the provisions of the German Sales Agreement and the Politz Agreement, and such other existing relations as may be approved by the Attorney General of the United States, or the Assistant Attorney General in charge of the Antitrust Division.

(2) To transfer to S. I. G. all their right to, title to, power and interest in all patents capable of being used in the fields of the practice of the following processes or the treatment, manufacture, utilization, or compounding of the following products: Hydroforming, Parafflow, Hydrogenation, Methane Steam or other processes for the production of hydrogen, Hydrocarbon Synthesis, Methanol, Alkacid, Clans, and Asphalt Additives, and all patents which have been or are being exploited by S. I. G. or as to which either Jersey or I. G. have been or are under commitment to grant to S. I. G. the right to exploit, license or to sublicense, and, in addition, all patents useful in the Hydrocarbon field and in respect of which Jersey or I. G. has assumed any commitment to the other; *Provided, however*, That in connection with the patents under which Jersey is under no commitment to I. G., and which are principally useful in fields other than those above but are none the less capable of being used in said fields, Jersey shall be under no obligation to transfer to S. I. G. title thereto, but only a right to license or to sublicense; and; *Provided further*, That save as set forth above, the right to sublicense shall be transferred only if it is impossible to transfer the right to license, and the right to license shall be transferred only if it is impossible to transfer title. This paragraph shall be applicable, but not limited to the patents listed on Schedule A attached hereto and made part hereof.

(3) To transfer to Jasco all their right to, title to, power and interest in, all patents capable of being used in the fields of the practice of the following processes or the treatment, manufacture, utilization, or compounding, of the following products: Butyl, Perbman or Buna-N, Buna-S, Polybutenese, Paraffin Oxidation, Acetylene, Arc, Styrene, Acrylonitrile and Butadiene, and all other patents which have been or are being exploited by Jasco, or as to which Jersey or I. G. have been or are under commitment to grant to Jasco the rights to exploit, to license or to sublicense, and, in addition, all patents not useful in the Hydrocarbon field and in respect of which Jersey or I. G. have assumed any commitment to the others; *provided*, however, that, in connection with patents under which Jersey is under no commitment to I. G., and which are principally useful in fields other than those described above but are none the less capable of being used in said fields, Jersey shall be under no obligation to transfer to Jasco title thereto, but only a right to license or to sublicense; and *provided*, that, in amplification of the definition of 'patents' above given, the butyl patents to be transferred to Jasco under the provisions of this decree shall include not only those in existence on the date of the entry of this decree and those issuing upon applications in existence on the date of the entry of this decree, but also those issued at any time thereafter until termination of the present emergency, based upon applications filed before or after the date of entry of this decree; and *provided*, that the defendants shall not, anything in this decree to the contrary notwithstanding, be required to license such butyl patents issued after the date of entry of this decree, unless the licensee agrees to grant back operating rights under its patents issued after the entry of the decree, but during the period of the emergency, relating to butyl rubber as hereinabove in Article II defined; and *provided, further*, that save as set forth above the right to sublicense shall be transferred only if it is impossible to transfer the right to license, and the right to license shall be transferred only if it is impossible to transfer title. This paragraph shall be applicable, but not limited, to the patents listed in Schedule B attached hereto and made a part hereof.

(4) To transfer to either S. I. G. or Jasco the title to all patents, not included in paragraphs (2) or (3) above, or in Schedule A or B, title to which is now held by W. E. Currie or P. L. Young, as trustees, and all other patents originating with I. G. to which Jersey or any of its employees, nominees or agents holds title, or the right to transfer title.

(5) To issue licenses or sublicenses, or to direct and compel the licensing agency to so do, on the request of any person or corporation, under the S. I. G. patents and under the Jasco patents, without restriction as to the products to be treated or manufactured or as to the technique to be employed or as to the use to be made of such patents, or as to the price to be charged for any of the products manufactured under such licenses or sublicenses, and without any other restriction whatsoever, save that reasonable royalty rates may be charged under said licenses or sublicenses in connection with operations after the present emergency, for the duration of which said licenses or sublicenses shall be royalty free; *provided*, however, that with respect to patents under which Jersey is under no commitment to I. G., and which are principally useful in fields other than Hydroforming, Parafflow, Hydrogenation, Methane, Steam or other processes for the production of hydrogen, Hydrocarbon Synthesis, Methanol, Alkacid, Claus, Asphalt Additives, Butyl, Perbunan or Buna-N, Buna-S, Polybutenes, Paraffin Oxidation, Acetylene Arc, Styrene, Acrylonitrile and butadiene, but which are none the less capable of being used in said fields, Jersey shall be required to issue licenses thereunder, for use in the above mentioned fields, in accordance with the provisions of this decree requiring the licensing of S. I. G. and Jasco patents, and, if the licensee wishes to use said patents for any other purpose, this decree shall have no application thereto; and *provided*, that the defendants shall be under no obligation for the duration of the present emergency to grant licenses to any member of C. R. A. under any hydroforming patents owned by Jersey and which originated with Jersey, unless said member agrees reciprocally to license Jersey under its own hydroforming patents, and *provided* that the defendant shall be free to collect royalties at any time on licenses under patents issued after the date of the entry of this decree except that with regard to operations conducted during the present emergency, no royalties shall be collected on United States patents hereafter resulting from the registering in the United States after the date of entry of this decree of patents issued abroad which, if they had been originally U. S. patents, would belong to S. I. G. or Jasco hereunder, and *provided further* that the defendants shall be free at any time to receive a reasonable compensation from licensees for the supply of know how furnished, in accordance with the provisions of paragraph (6) below, with all licenses under Butyl patents.

(6) To furnish with all licenses issued under paragraph (5) above know-how without compensation therefor, save that the cost of furnishing know-how may be recovered from the licensee, which cost shall include the value of the time spent by defendant's personnel in furnishing said know-how, and save that a reasonable compensation may be received for know-how furnished with licenses under Butyl patents.

(7) To revise existing licenses under patents covered by paragraphs (2) and (3) above in order to conform said licenses to the royalty provisions of this decree; *provided*, however, that this paragraph IV (7) shall not change in any way the obligation of the defendants to grant such further licenses or rights to such licenses as are provided for in this decree, and *provided further* that the defendants are further enjoined from enforcing any rights under such existing licenses which would derogate from the right of such licensees to receive further licenses as provided for in this decree; and *provided further* that the right of the licensees to cancel existing license agreements is hereby expressly granted.

(8) With regard to all patents, title to which or the right to license or to sublicense thereunder, is held under the terms and conditions of either the Juik Agreement, the Sulfuric Acid Alkylation Agreement, or the Polycro Agreement, (a) for the duration of the present emergency, to issue licenses or sublicenses on the request of any person or corporation, in accordance with the terms and conditions of said agreements, and to furnish know-how therewith, (b) after the termination of the present emergency, to issue licenses or sublicenses on the request of any person or corporation, and to furnish know-how therewith, without restriction as to the products to be treated or manufactured or as to the technique to be employed or as to the use to be made of such patents, or as to the price to be charged for any of the products manufactured under such licenses or sublicenses, and without any other restriction whatsoever, save that reasonable royalty rates may be charged, and to refrain from bringing any patents or future patents under the terms and conditions of said agreements without the consent of

the Attorney General or the Assistant Attorney General in charge of the Antitrust Division, (c) to initiate and carry on in good faith with all diligence, negotiations with the other parties to the above mentioned agreements with the object of changing and amending said agreements so as to make possible the carrying out of the provisions of this paragraph (8), *provided*, however, that the defendants shall not be held to be in contempt of court for failure to carry out any of the provisions of this paragraph (8) to the extent that such failure is caused by the refusal of the other parties to the above mentioned agreements to agree to the changes and amendments thereof necessary for the carrying out by the defendants of the provisions of this paragraph (8).

(9) To file with the Attorney General of the United States, or the Assistant Attorney General in charge of the Antitrust Division, copies of all applications for licenses under the terms of this decree, immediately upon receipt thereof, and of all licenses issued, and to furnish the Attorney General of the United States, or the Assistant Attorney General in charge of the Antitrust Division, with full information as to the status of all negotiations between applicants and any of the defendants or a licensing agency with regard to the failure to grant a license or sublicense where an application therefor has been pending for a 90-day period.

(10) In case of failure by any defendant to agree with the applicant for a license as to any of the terms thereof, or in case of dispute between any of the defendants and the Attorney General of the United States, or the Assistant Attorney General in charge of the Antitrust Division, with regard to whether or not the terms of a license are in accordance with the provisions of this decree, to issue the license or sublicense applied for in a form approved by the Attorney General of the United States, or the Assistant Attorney General in charge of the Antitrust Division, and subject to review and modification by this court as to the terms thereof.

(11) Without limiting the operation of any other provision of this decree, to make available to the public at reasonable royalty rates appropriate patent licenses and know-how for the manufacture and sale of the products set forth in Schedule C attached hereto and made a part hereof, *provided*, however, that the defendant shall not be under any obligation to make available any licenses under patent rights owned by Standard Alcohol Company.

(12) To furnish the Attorney General of the United States or the Assistant Attorney General in charge of the Antitrust Division, upon request with statements setting forth costs, broken down in detail, for the production of the following: ethyl alcohol, methyl alcohol, butyl rubber, Perbunan or Buna-N rubber, Buna-S rubber, butadiene, toluene or toluol, styrene, acrylonitrile and aviation gasoline (including base stock and blending agents), such statements to be based upon Jersey's operations, or, in case any of the stated products have not been produced by Jersey, upon Jersey's best estimates; with separate figures reflecting in convenient form the capital outlay requirements for production of the above stated products, and with prices at which such products are, or are to be sold.

(13) To furnish the Attorney General of the United States or the Assistant Attorney General in charge of the Antitrust Division, with a statement of the royalty rates at present charged on Jasco or S. I. G. licenses granted for manufacture under Government contracts, this statement to include, but not to be limited to, rates charged with reference to such contracts for the production of aviation gasoline, synthetic rubber, butadiene, styrene, acrylonitrile, toluene or toluol, *provided*, however, that the Attorney General of the United States or the Assistant Attorney General in charge of the Antitrust Division, shall in no event divulge to any persons other than official representatives of the United States Government any of the information furnished by the defendants in accordance with the provisions of paragraphs (12), and this paragraph (13).

(14) To bring about one year after the entry of this decree, the dissolution of Hydro Patents Co., Inc., and Hydro Engineering and Chemical Co., Inc., *provided*, however, that the defendants shall not be held to be in contempt of court for failure to carry out the requirement of this paragraph (14) to the extent that such failure is caused by the refusal of the other shareholders in the above-mentioned corporations to agree to the dissolution thereof.



The defendants and their directors, officers, agents and employees successors and subsidiaries, and all persons acting under, through, or for their successors or subsidiaries, or any of them, be and they hereby are individually enjoined and restrained from:

(1) Entering into, abiding by, carrying out, or enforcing directly or indirectly, with I. G., any general plan or program to effect the transfer as between the parties of any rights under patents or future patents, United States or foreign, notwithstanding the definition of patents in this decree, except upon giving contemporaneous notice thereof to the Attorney General, or the Assistant Attorney General in charge of the Antitrust Division; or performing any act in continuation of the Four Party Agreement outside the United States to the extent that such is permitted under Section VI of this decree, except upon giving contemporaneous notice thereof to the Attorney General, or the Assistant Attorney General in charge of the Antitrust Division; or entering into, abiding by, carrying out, or enforcing directly or indirectly, with I. G., any individual contract or agreement *not* forming a part of a plan or program to effect the transfer as between the parties of any rights under patents or future patents without notifying the Attorney General, or the Assistant Attorney General in charge of the Antitrust Division, of the existence of such individual contract or agreement, and filing a copy thereof with the Attorney General, or the Assistant Attorney General in charge of the Antitrust Division, within thirty days after the execution of such individual contract or agreement.

(2) Entering into, abiding by, carrying out, or enforcing, directly or indirectly, any contract, agreement, understanding, arrangement, plan, or program with any person, corporation, company or association, (a) to divide sales territories, or restrict production or agree not to manufacture; (b) not to sell products in, or not to export products from, any specified territory; (c) to allow any other company to sell without competition from either party in any market of the world; (d) to refrain from competition in any product; (e) to keep any third party out of any market; and (f) not to develop, manufacture, use, or sell processes or products having to do with either the oil field or the chemical field or any other field of industry, provided, however, that the injunctive provision of this subsection (f) of this paragraph (2) shall not be applicable to individual contracts entered into by defendant Standard, which contracts are not part of a broader plan or program between Standard and the other party or parties to the contract.

(3) Accounting to I. G. in respect of receipts from the subject matter covered by the Hague Memorandum, or any other agreement declared illegal by the terms of this decree.

(4) Carrying out, abiding by, adhering to, or following any of the several memoranda dated October 12, 1938, October 13, 1938, August 15, 1939, April 17, 1940, and July 9, 1940, creating C. R. A., copies of which are attached hereto and made a part hereof and marked respectively exhibits N, O, P, Q, and R.

(5) Carrying out, abiding by, adhering to, or following any of the provisions, or any extensions, interpretations, or amendments thereof, of the letter concerning C. R. A. dated May 11, 1940, executed by I. G., a copy of which is attached hereto and made a part hereof and marked exhibit S.

(6) Carrying out, abiding by, adhering to, or following any of the agreements dated October 7, 1938, and January 1, 1940, between Development, S. I. G., and I. G., and the guarantees thereof by Standard, relating to the exploitation of the hydrocarbon synthesis process, copies of which are attached hereto and made a part hereof and marked respectively exhibits T and U.

(7) Curtailing, restricting, limiting, shutting back, or refraining from, directly or indirectly, the export from, the import into, or the production within, the United States or any of its territories, of any petroleum or petroleum products in accordance with or by reason of an understanding in the form which it has taken from time to time since the year 1928, and to which Jersey and Shell are the principal parties in interest, or any like or similar agreement, understanding or undertaking between Jersey and any other person, firm, or corporation, *provided*, however, that the prohibitions

contained in this paragraph (7) shall not be applicable to any activities of the defendants performed in carrying out an arrangement between Jersey and the Socony-Vacuum Oil Company, Inc., or its successors regarding the supply of petroleum products for aviation use outside the United States, and known as Intava.

#### VI

None of the prohibitions contained in paragraphs (2) and (7) of Section V above nor the declaration of invalidity and injunction against further performance of the Four Party Agreement in Section III above, shall have any effect with respect to operations or activities outside the United States, its territories and the District of Columbia not violative of the Antitrust Laws or to operations and activities within the United States, its territories and the District of Columbia relating exclusively to acts and operations outside the United States, its territories and the District of Columbia not violative of the Antitrust Laws, or to operations and activities, wherever performed, authorized and permitted by the Act of Congress of April 10, 1918, commonly called the Webb-Pomerene Act, or by acts amendatory thereto.

#### VII

Nothing contained in this decree shall affect or diminish any right, title or interest of the defendants, their successors, subsidiaries or assigns in or to or under any presently existing patents, licenses under such patents, patent applications, assignments of such patents or of such patent applications, trade marks, trade names, or shares of corporate stock, or impair any rights or remedies of said defendants, their successors, subsidiaries or assigns, provided by statute or convention, and by suits for damages, injunction or other remedy with respect to any such patents, licenses under such patents, patent applications, assignments of such patents or of such patent applications, trade marks, trade names or shares of corporate stock, *provided*, however, that the patents, licenses under such patents, patent applications, assignments of such patents or of such patent applications, trade marks, trade names and shares of corporate stock above mentioned shall notwithstanding the definition of patents in this decree, be taken to include those of foreign countries as well as of the United States.

#### VIII

Nothing in this decree shall be construed to restrict or prohibit the exercise of the right of the Department of Justice, which right is hereby specifically reserved, to take such other action, civil or criminal, against the defendants in this action, as it may see fit in connection with any existing patent pool or contract or other arrangement involving patents to which any of the defendants are present parties, *provided*, however, that this Section VIII shall not be applicable to such agreements or arrangements as are specifically named in Section III above.

#### IX

For the purpose of securing compliance with this decree, and for no other purpose, duly authorized representatives of the Department of Justice shall, on written request of the Attorney General or an Assistant Attorney General and on reasonable notice to any one of the defendant corporations made to the principal office of such defendant corporation, be permitted, subject to any legally recognized privilege (1) access, during the office hours of such defendant corporation, to all books, ledgers, accounts, correspondence, memoranda and other records and documents in the possession or under the control of the defendant corporation, relating to any matters contained in this decree, (2) subject to the reasonable convenience of such defendant corporation and without restraint or interference from them, to interview officers or employees of such defendant corporation, who may have counsel present, regarding any such matters, and (3) such defendant corporation, on such request, shall submit such reports in respect of any such matters as may from time to time be reasonably necessary for the proper enforcement of this decree: *Provided, however*, that information obtained by the means permitted in this paragraph shall not be divulged by any representa-

tive of the Department of Justice to any person other than a duly authorized representative of the Department of Justice except in the course of legal proceedings for the purpose of securing compliance with this decree in which the United States is a party or as otherwise required by law.

## X

Jurisdiction of this cause is retained for the purpose of enabling any of the parties to this decree to apply to the Court at any time for such further orders and directions as may be necessary or appropriate for the construction or carrying out of this decree, for the modification or termination of any of the provisions thereof, for the enforcement of compliance therewith and for the punishment of violations thereof.

## XI

Nothing in this decree shall be construed to restrict or prohibit in any way any action taken by any defendant, its successors, subsidiaries, officers, or employees in good faith and within the fair intendment of the letter of the Attorney General of the United States to the General Counsel of the Office of Production Management, dated April 29, 1941, (a copy of which is attached hereto as Exhibit "V"), or with any amendment or amplification thereof by the Attorney General, or in accordance with any arrangement of similar character between the Attorney General and any National Defense Agency in effect at the time, provided such letter or arrangement has not at the time of such action been withdrawn or cancelled with respect thereto.

## XII

The Alien Property Custodian, having entered a formal appearance in this proceeding and having become a party herein, hereby consents to the entry of this decree and agrees to be bound by the provisions thereof. Pursuant to such consent and this agreement to be bound, the Alien Property Custodian further agrees to execute such further transfers of property to S. I. G. or Jasco as may be necessary to carry out the provisions of the decree, including the provisions of the decree limiting or prohibiting royalties under those patents and providing for compulsory licensing under them. The consent of the Alien Property Custodian to the entry of this decree and this agreement to be bound, however, shall not affect such further rights of the Alien Property Custodian to any property or the proceeds thereof, or rights therein, as may remain unaffected by the terms of this decree, and all such right, title and interest of the Alien Property Custodian in any property or the proceeds thereof as between the Alien Property Custodian and any of the defendants is hereby expressly reserved.

This day of March, 1942.

*Justice.*

We hereby consent to the entry of the foregoing final judgment.

For the Plaintiff:

For the Defendants:

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Assistant Attorney General

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United States Attorney

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Alien Property Custodian

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Special Assistants to the  
Attorney General

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Special Attorneys

## Schedule A

U. S. Patent:	U. S. Patent:	U. S. Patent:	U. S. Patent:
1,558,559	1,937,554	2,127,577	1,938,088
1,569,775	1,937,588	2,132,855	2,028,472
1,643,663	1,938,542	2,149,900	2,063,623
1,684,640	1,949,109	2,154,527	2,111,126
1,698,602	1,954,096	2,159,077	2,130,024
1,743,214	1,955,014	2,159,140	2,147,315
1,766,763	1,955,829	2,159,511	2,189,924
1,788,170	1,955,861	2,165,940	2,258,806
1,791,568	1,957,787	2,167,004	2,271,093
1,798,288	1,959,175	2,170,976	1,990,217
1,801,382	1,959,924	2,177,376	2,011,386
1,818,165	1,960,794	2,183,145	2,053,650
1,823,116	1,960,972	2,183,146	2,176,441
1,823,468	1,960,977	2,191,156	1,782,590
1,835,425	1,961,982	2,191,157	1,889,942
1,835,426	1,963,759	2,194,186	1,900,751
1,841,910	1,965,956	2,203,842	1,911,498
1,844,998	1,966,624	2,206,729	1,984,971
1,845,058	1,969,422	2,207,581	2,157,318
1,845,439	1,970,248	2,211,022	2,168,150
1,845,555	1,973,833	2,215,190	1,988,543
1,851,762	1,975,475	2,215,869	1,988,543
1,857,814	1,979,841	2,215,876	2,008,978
1,859,314	1,983,234	2,220,261	2,038,572
1,863,670	1,983,241	2,221,952	2,191,295
1,876,009	1,984,596	2,227,671	1,988,543
1,876,270	1,988,019	2,227,672	1,504,624
1,881,968	1,989,822	2,234,568	1,591,526
1,881,969	1,990,708	2,238,240	1,631,823
1,889,251	1,993,226	2,238,851	1,673,620
1,890,434	1,994,058	2,242,463	1,678,630
1,890,436	1,994,075	2,248,099	1,681,335
1,890,437	1,995,647	2,251,554	1,684,634
1,890,438	1,996,008	2,254,748	1,687,118
1,890,439	1,996,009	2,254,806	1,704,732
1,894,116	1,998,595	2,274,639	1,732,371
1,894,257	2,002,997	1,913,940	1,748,315
1,895,764	2,005,192	1,913,941	1,751,955
1,895,769	2,006,996	1,543,357	1,760,289
1,904,476	2,028,348	1,723,772	1,766,699
1,904,521	2,035,133	1,751,117	1,766,718
1,908,286	2,038,599	1,776,876	1,775,640
1,910,050	2,039,259	1,790,248	1,775,674
1,910,051	2,045,794	1,790,249	1,776,193
1,914,727	2,045,795	1,793,136	1,778,447
1,917,324	2,054,776	1,818,579	1,783,726
1,919,857	2,058,789	1,857,799	1,783,757
1,920,886	2,059,495	1,869,825	1,787,951
1,920,887	2,068,868	1,882,977	1,788,204
1,920,888	2,087,608	1,898,527	1,794,865
1,921,477	2,091,831	1,898,967	1,803,855
1,921,478	2,093,096	1,921,856	1,812,398
1,922,499	2,098,400	1,931,492	1,813,514
1,922,542	2,100,352	1,934,836	1,814,410
1,923,576	2,100,353	1,938,087	1,818,158
1,930,468	2,100,354	1,957,743	1,822,349
1,931,549	2,115,336	1,957,744	1,822,351
1,931,550	2,116,061	1,977,992	1,823,503
1,932,186	2,116,081	2,000,224	1,828,380
1,932,365	2,118,940	2,038,566	1,838,893
1,932,369	2,119,647	2,042,285	1,840,287
1,932,673	2,120,295	2,056,911	1,840,649
1,933,069	2,127,382	2,083,795	1,842,906
1,934,001	2,127,383	2,111,579	1,847,095
			1,849,675

## Schedule A—Continued

U. S. Patent:	U. S. Patent:	U. S. Patent:	U. S. Patent:
1,851,726	1,952,459	2,134,333	1,915,618
1,854,146	1,955,025	2,137,602	1,916,441
1,856,186	1,958,648	2,140,545	1,920,140
1,863,212	1,960,348	2,141,731	1,933,047
1,863,586	1,960,974	2,143,393	1,933,107
1,864,856	1,963,245	2,144,409	1,933,108
1,865,183	1,964,891	2,147,838	1,933,503
1,868,127	1,965,390	2,152,454	1,933,508
1,868,919	1,965,952	2,153,644	1,934,023
1,868,920	1,967,665	2,154,676	1,934,028
1,868,921	1,967,691	2,157,332	1,934,031
1,869,736	1,971,301	2,159,148	1,934,037
1,878,509	1,973,834	2,159,175	1,934,054
1,881,490	1,973,851	2,161,663	1,934,055
1,881,691	1,975,476	2,163,922	1,934,056
1,881,692	1,986,238	2,164,762	1,934,062
1,881,861	1,987,092	2,165,372	1,934,063
1,882,712	1,988,873	2,165,373	1,934,093
1,882,813	1,990,213	2,168,933	1,940,050
1,884,093	1,993,386	2,173,482	1,940,648
1,889,926	1,998,626	2,179,829	1,940,649
1,889,932	2,007,754	2,184,697	1,940,650
1,889,952	2,008,953	2,185,405	1,940,651
1,893,804	2,017,557	2,187,872	1,940,652
1,894,126	2,018,619	2,189,062	1,940,653
1,894,140	2,018,871	2,191,794	1,944,236
1,894,255	2,020,703	2,195,747	1,944,639
1,894,764	2,020,713	2,196,016	1,948,378
1,899,582	2,020,714	2,197,768	1,948,407
1,904,477	2,022,279	2,197,769	1,948,408
1,904,586	2,025,490	2,203,470	1,949,230
1,905,520	2,028,308	2,210,148	1,949,231
1,906,462	2,028,349	2,216,257	1,949,630
1,907,812	2,041,234	2,223,184	1,949,631
1,909,145	2,045,747	2,224,003	1,949,632
1,910,910	2,055,135	2,225,045	1,950,308
1,911,505	2,055,633	2,228,118	1,950,309
1,911,586	2,056,914	2,242,321	1,951,725
1,913,968	2,060,230	2,245,157	1,951,792
1,916,824	2,060,356	2,247,465	1,953,039
1,916,836	2,060,447	2,250,949	1,954,972
1,919,730	2,063,596	2,253,093	1,954,993
1,922,491	2,067,311	2,254,745	1,955,253
1,922,918	2,083,125	2,257,173	1,955,268
1,923,571	2,085,129	2,257,213	1,955,297
1,923,583	2,086,856	2,271,942	1,955,862
1,923,652	2,090,813	2,274,750	1,960,203
1,925,551	2,094,476	1,702,899	1,960,204
1,925,566	2,097,605	1,838,547	1,960,206
1,927,244	2,098,779	1,838,548	1,960,207
1,929,649	2,099,475	1,843,880	1,963,385
1,933,434	2,104,097	1,851,580	1,966,790
1,934,007	2,104,956	1,870,792	1,981,727
1,936,453	2,106,446	1,872,011	1,981,811
1,937,619	2,106,960	1,881,534	1,988,731
1,938,086	2,113,162	1,884,269	1,995,604
1,941,884	2,115,553	1,894,770	2,006,177
1,944,420	2,119,350	1,894,785	2,009,717
1,945,583	2,119,651	1,902,015	2,018,772
1,945,907	2,120,296	1,904,133	2,025,384
1,945,960	2,122,903	1,904,218	2,031,961
1,946,108	2,125,343	1,908,338	2,042,298
1,946,109	2,128,958	1,912,136	2,042,306
1,950,811	2,133,496		

*Schedule A—Continued*

U. S. Patent :	U. S. Patent :	U. S. Patent :	U. S. Patent :
2,106,973	2,256,969	1,943,821	2,271,214
2,112,292	2,264,427	1,948,338	1,815,022
2,123,623	2,266,161	1,951,774	1,934,608
2,160,136	2,274,064	1,955,290	2,015,748
2,161,974	2,268,094	1,970,695	2,049,058
2,167,339	1,904,439	1,998,401	2,069,274
2,192,125	1,904,440	2,028,326	2,087,682
2,202,401	1,904,441	2,084,511	2,135,044
2,204,193	1,904,592	2,112,387	2,161,987
2,209,190	1,904,593	2,125,743	2,174,246
2,232,909	1,915,362	2,135,058	2,209,462
2,238,594	1,915,363	2,137,101	2,240,583
2,248,734	1,934,029	2,209,492	2,246,311
2,256,622	1,934,075	2,229,199	2,249,317

*Schedule B*

U. S. Patent :	U. S. Patent :	U. S. Patent :	U. S. Patent :
1,789,873	2,140,048	1,871,082	1,856,639
1,809,445	2,175,082	1,872,774	1,880,924
1,814,420	2,180,082	1,874,322	1,881,853
1,823,495	2,180,083	1,880,677	1,892,973
1,826,846	2,194,416	1,909,295	1,894,763
1,827,285	2,209,746	1,912,123	1,902,351
1,832,450	2,211,032	1,920,344	1,904,426
1,838,234	2,216,958	1,921,381	1,907,855
1,851,104	2,222,967	1,925,525	1,926,575
1,859,686	2,230,894	1,927,846	1,941,077
1,860,681	2,234,076	1,927,841	1,942,131
1,864,078	2,248,107	1,931,501	1,945,592
1,874,546	2,260,475	1,931,859	1,951,789
1,879,543	2,065,474	1,932,613	1,960,326
1,880,918	2,106,232	1,940,400	1,961,980
1,882,976	2,130,507	1,943,427	1,972,476
1,885,653	2,172,403	1,965,566	1,973,840
1,896,491	2,180,081	1,965,961	1,975,480
1,896,493	2,248,749	1,965,962	1,977,155
1,898,522	1,732,381	1,977,988	1,984,957
1,901,044	1,795,549	1,981,384	1,988,032
1,901,045	1,799,787	1,990,229	1,992,598
1,901,354	1,832,428	2,000,222	2,002,003
1,906,607	1,841,055	2,003,584	2,013,996
1,908,482	1,882,978	2,008,490	2,029,120
1,911,672	1,900,739	2,015,347	2,074,530
1,911,729	1,919,752	2,055,095	2,074,619
1,915,745	1,923,569	2,056,984	2,077,586
1,921,867	1,944,153	2,059,201	2,079,976
1,924,227	1,955,046	2,059,232	2,081,770
1,926,424	2,004,521	2,095,338	2,093,146
1,929,373	2,145,059	2,095,473	2,102,751
1,932,390	2,184,164	2,102,726	2,153,578
1,935,733	2,207,970	2,146,018	2,153,985
1,938,730	2,227,953	2,158,650	2,160,452
1,938,731	2,243,191	2,193,321	2,207,071
1,938,751	2,259,195	2,216,222	2,213,267
1,953,468	2,265,641	2,216,238	2,215,854
1,973,000	2,274,358	2,228,925	2,215,867
1,979,946	1,757,455	2,230,582	2,215,875
1,979,947	1,762,688	2,247,741	2,256,174
1,991,367	1,788,799	1,746,934	1,811,130
2,008,491	1,823,983	1,757,454	1,885,060
2,067,304	1,834,866	1,794,004	1,891,203
2,080,363	1,864,658	1,828,372	1,914,326

*Schedule B—Continued*

U. S. Patent :	U. S. Patent :	U. S. Patent :	U. S. Patent :
1,935,207	2,174,756	2,181,158	2,275,185
1,985,844	2,211,429	2,189,873	1,904,452
1,986,241	2,227,659	2,201,871	2,038,617
1,998,350	2,232,331	2,205,108	2,052,165
2,005,042	2,274,584	2,216,253	2,068,854
2,048,662	2,184,966	2,220,930	2,156,266
2,049,019	2,502,363	2,229,661	2,274,057
2,073,054	2,213,423	2,235,127	2,165,820
2,084,500	2,255,396	2,240,582	2,183,148
2,084,501	2,258,268	2,243,470	1,888,978
2,087,616	2,270,285	2,243,658	1,904,582
2,097,468	2,273,158	2,244,021	2,015,703
2,110,833	2,131,196	2,248,071	2,049,043
2,121,367	2,139,038	2,255,388	2,087,585
2,121,368	2,152,828	2,257,167	2,121,998
2,124,235	2,170,439	2,271,636	2,125,735
2,143,370	2,176,194	2,275,164	2,135,068
2,149,265	2,178,808	1,988,479	
2,156,070	2,181,144	2,209,215	

*Schedule C*

Ethylene Glycol	Formaldehyde
Ethylene Glycole	Acetaldehyde
Acetic Acid	Methylvinyl Ketone
Acetic Anhydride	Monovinyl Acetate
Synthetic Ammonia	Polyvinyl Acetate
Synthetic Glycerine	Chlorinated Butadiene

*Exhibit "V"*

APRIL 29, 1941.

JOHN LORD O'BRIAN, Esquire.

*General Counsel, Office of Production Management,**Washington, D. C.*

DEAR JOHN: The marshaling of the nation's industrial assets for a maximum productive effort in the national defense will doubtless require the allocation of orders, the curtailment of some kinds of production so as to increase production in defense fields, and the establishment of priorities and price ceilings. Furthermore, many of these steps must necessarily affect the production of goods used to satisfy our normal needs, as well as the production of materials and implements used directly in our defense effort.

Some of these acts if accomplished by private contract or arrangement within an industry and carried on for private advantage would probably constitute violations of the antitrust laws. On the other hand, it is obvious that in the present emergency acts performed by industry under the direction of public authority, and designed to promote public interest and not to achieve private ends, do not constitute violations of the antitrust laws. In these circumstances, the Department of Justice recognizes that business interests which are asked to comply with public plans for increasing production and preventing inflation are entitled to the cooperation of agencies of the Government in eliminating any uncertainties which may exist as to the application of the antitrust laws to their activities.

Accordingly, this Department has formulated a policy which it proposes to follow in its relations with the Office of Production Management and the Office of Price Administration and Civilian Supply and with all industries or contractors acting in compliance with the orders or requests of either of these organizations. The important points of this policy are:

Meetings of the industry with the Office of Production Management and the Office of Price Administration and Civilian Supply or their representatives are not illegal. Industrial committees may be formed at the request of the Office of Production Management or the Office of Price Administration and Civilian Supply, to work with representatives of such offices on problems involving defense. There will be nothing unlawful in the industry cooperating in the selection of its representatives or in selecting members for committees, or in the activities of such committees provided they are kept within the scope of this letter.

Questions as to whether there is need for such a committee, and if so, how it shall be chosen, and by whom constituted, shall be sole responsibility of the Office of Production Management or the Office of Price Administration and Civilian Supply. This Department will not participate in these decisions beyond the suggestion now made that any such committee should be generally representative of the entire industry and satisfactory to the Office of Production Management or the Office of Price Administration and Civilian Supply.

Each industry committee shall confine itself to collecting and analysing information and making recommendations to the Office of Production Management or the Office of Price Administration and Civilian Supply, and shall not undertake to determine policies for the industry, nor shall it attempt to compel or to coerce anyone to comply with any request or order made by a public authority.

All requests for action on the part of any unit of an industry shall be made to such unit by the Office of Production Management or the Office of Price Administration and Civilian Supply and not by the industry committee. That is to say, the function of determining what steps should be taken in the public interest should in each case be exercised by the public authority which may seek the individual or collective advice of the industry. But the determination shall not be made by the industry itself or by its representatives.

Requests for action within a given field, such as the field of allocation of orders, shall be made only after the general character of the action has been cleared with the Department of Justice. If the general plan is approved, thereafter each request for specific action in carrying out such plan shall be made in writing and shall be approved by the office of the General Counsel of the Office of Production Management or the office of the General Counsel of the Office of Price Administration and Civilian Supply, but need not be submitted to the Department of Justice. In the case of any change in the personnel of such offices or if serious practical difficulties arise, this latter arrangement may be revoked, upon notice from me.

Acts done in compliance with the specific requests made by the Office of Production Management or the Office of Price Administration and Civilian Supply and approved by their General Counsel in accordance with the procedure described in this letter will not be viewed by the Department of Justice as constituting a violation of the antitrust laws and no prosecutions will be instituted for acts performed in good faith and within the fair intendment of instructions given by the Office of Production Management or the Office of Price Administration and Civilian Supply pursuant to this procedure.

In the case of all plans or procedure, however, the Department reserves complete freedom to institute civil actions to enjoin the continuing of acts or practices found not to be in the public interest and persisted in after notice to desist.

With kind personal regards,  
Sincerely,

(S) ROBERT H. JACKSON,  
*Attorney General.*



## EXHIBIT No. 441

IN THE DISTRICT COURT OF THE UNITED STATES FOR THE DISTRICT  
OF NEW JERSEY

No. ——— (Criminal)

UNITED STATES OF AMERICA, PLAINTIFF

v.

STANDARD OIL COMPANY (NEW JERSEY)  
 STANDARD OIL COMPANY OF NEW JERSEY  
 STANDARD OIL DEVELOPMENT COMPANY  
 STANDARD OIL COMPANY OF LOUISIANA  
 STANDARD CATALYTIC COMPANY  
 JASCO, INC.  
 HYDRO ENGINEERING AND CHEMICAL COMPANY  
 WALTER C. TEAGLE  
 W. S. FARISH  
 FRANK A. HOWARD  
 DEFENDANTS

## INFORMATION

UNITED STATES OF AMERICA

*District of New Jersey, s. s.:*

At the November 1941 term of the District Court of the United States of America for the District of New Jersey, held in Newark, New Jersey, in said district, comes the United States of America, acting through Francis Biddle, Attorney General, Thurman Arnold, Assistant Attorney General; Edward P. Hodges, Herbert A. Berman, Patrick A. Gibson and Robert M. Hunter, Special Assistants to the Attorney General; and John R. Jacobs, Jr., and Webb G. Ellis, Special Attorneys, and leave of the Court having first been obtained, informs the Court as follows:

## DEFENDANTS

1. Standard Oil Company, hereinafter sometimes referred to as "Standard", a corporation organized and existing under the laws of the State of New Jersey, and having its principal office and place of business at New York, New York, is hereby named and made a defendant herein.

2. Standard Oil Company of New Jersey, hereinafter sometimes referred to as "Delaware", a corporation organized and existing under the laws of the State of Delaware, and having its principal office and place of business at New York, New York and its principal refinery operations at Bayonne, New Jersey, and being a wholly-owned operating subsidiary of Standard, is hereby named and made a defendant herein.

3. Standard Oil Development Company, hereinafter sometimes referred to as "Development", a corporation organized and existing under the laws of the State of Delaware, and having its principal office and place of business at New York, New York, but carrying on many of its operations at Linden, New Jersey, and being a wholly-owned subsidiary of Standard, is hereby named and made a defendant herein.

4. Standard Oil Company of Louisiana, hereinafter sometimes referred to as "Louisiana", a corporation organized and existing under the laws of the State of Louisiana, and having its principal office and place of business at Baton Rouge, Louisiana, and being a wholly-owned operating subsidiary of Standard, is hereby named and made a defendant herein.

Name of Individual	Title and Position	Corporate Defendant With Which Connected
W. C. Teagle.....	Chairman of Board.....	Standard.
W. S. Farish.....	President and Director.....	Standard.
Frank A. Howard.....	President.....	Development.
	Vice-President.....	Standard.

5. Standard Catalytic Company, originally known as S. I. G. Company and subsequently as Standard-I. G. Company, hereinafter sometimes referred to as "S. I. G.", a corporation organized and existing under the laws of the State of Delaware, with offices at Linden, New Jersey, but having its principal office at New York, New York, all of the capital stock of which is now in the name of Standard, is hereby named and made a defendant herein.

6. Jasco, Inc., hereinafter sometimes referred to as "Jasco", a corporation organized and existing under the laws of the State of Louisiana, and having its principal office and place of business at Baton Rouge, Louisiana, 50 per cent of the capital stock of which is held by Walter Schaefer and Harold A. Koechling, both employees of Defendant Standard, as trustees, and the remaining 50 per cent of which is in the name of Development, is hereby named and made a defendant herein.

7. The Hydro Engineering and Chemical Company, hereinafter sometimes referred to as "Engineering", a corporation organized and existing under the laws of the State of Delaware, and having its principal office and place of business at New York, New York, with an office also at Linden, New Jersey, and being a wholly-owned subsidiary of Development, is hereby named and made a defendant herein.

8. The following individuals are hereby named and made defendants herein:

9. Each of the individual defendants is now associated with, or employed by, a corporate defendant, and holds an official position therewith, as shown above. During the period covered by this information, and at all times during the three years next preceding the date of the filing of this information, each of the above named individual defendants has been actively engaged in the management, direction and control of the affairs, policies and acts of the respective corporate defendants, and particularly the affairs, policies, and acts described in this complaint, and has authorized, ordered, or done many of the acts of said corporate defendants constituting the violations of law hereinafter alleged in this information.

#### CO-CONSPIRATOR

10. I. G. Farbenindustrie Aktiengesellschaft, hereinafter sometimes referred to as "I. G.", a corporation organized and existing under the laws of the German Reich, and having its principal office and place of business at Frankfurt am Main, Germany, is not made a defendant herein, but is made a co-conspirator in the conspiracies herein alleged.

#### NATURE OF TRADE AND COMMERCE INVOLVED

11. Petroleum in its crude state is found under the earth in many places throughout the world. More than half of the crude petroleum produced comes from oil fields in the United States, the balance coming from fields located principally in Venezuela, Colombia, Mexico, Dutch East Indies, Russia, Iran, Iraq and the Persian Gulf.

12. Crude petroleum consists of a large number of compounds, known as hydrocarbons, which contain hydrogen and carbon in varying proportions. Each compound belongs to a chemical series, such as the paraffin or the naphthene series, with the percentage of hydrogen and carbon in each series varying according to a fixed formula. The boiling point of a hydrocarbon increases with the number of carbon atoms it contains, a hydrocarbon containing four carbon atoms or less being usually gaseous at room temperature. A hydrocarbon containing from five to ten carbon atoms produces gasoline, while one containing from ten to fifteen produces kerosene.

13. Crude petroleum in its natural state is of no practical use. Not until it is broken down and the chemical constituents thereof separated from each other is it converted into products of commercial value and practical use. From the time of the discovering of the first oil well in Pennsylvania in 1859 until approximately 1911, the only method employed to effect such a separation was that of heating the crude petroleum, and drawing off the vapors that condensed at different stages of temperature. Gasoline and kerosene were then the principal marketable products of petroleum. At that time the oil industry was handicapped by the fact that only a portion of the crude petroleum distilled became the desired product, such as kerosene or gasoline, the balance of the crude petroleum being converted into various fuel oils and other products which the petroleum industry was compelled to sell in competition with coal and other cheap fuels, although no great demand

existed for these by-products of the distillation of petroleum. With the increased use of the automobile, there was a greater demand for gasoline and a consequent greater production thereof, as well as of the above-mentioned by-products.

14. In or about 1911, it was discovered that certain hydrocarbons with high boiling points could be broken down under heat and pressure into two or more hydrocarbon compounds having lower boiling points. This method of breaking down petroleum became known as the cracking process and eventually was developed to such an extent that a given quantity of crude petroleum could produce double the amount of gasoline by this process as it could by the old distillation process. Although by this new process more gasoline could be obtained from a given amount of crude petroleum, the question of disposing of the by-products from the production of gasoline still remained and the question of the dependability of the supplies of crude petroleum was still unsettled, there being grave doubt as to how much longer these supplies would last. In fact, by 1927, it was estimated that the crude petroleum reserves of the world would not last more than three to five years. Some years earlier, chemists had already commenced their endeavors to produce gasoline and other petroleum products synthetically. In or about 1912, a method, known as the Bergius method, by which coal could be converted into petroleum products was invented.

15. After the World War of 1914-1918, chemists working for the I. G. developed improved methods of converting coal into gasoline and other useful hydrocarbons by means of new catalysts used in the presence of hydrogen at high temperatures. Methods of making oil from coal by adding hydrogen, or of refining petroleum in the presence of hydrogen, are sometimes referred to as the hydrogenation process. This process could likewise be used on crude petroleum, and it had the great advantage of converting all of a given amount of petroleum into gasoline, or lubricating oil or other desired products, in contrast to earlier methods which had been able to convert only part of the petroleum into gasoline, or other desired products, the remainder going into less useful by-products. Furthermore, the hydrogenation process could be used on very low grades of crude petroleum which could not be exploited by means of the ordinary cracking processes. The feared shortage of petroleum in 1927 caused Standard to take a great interest in the hydrogenation process, but the discovery of large additional supplies of crude petroleum in the United States and abroad shortly thereafter turned Standard away from the active use of the hydrogenation process, with the result that this process has in fact not been used extensively in the United States, save in the manufacture of aviation gasoline. Standard, as pointed out, did not need to use the hydrogenation process, and, as a result of the conspiracy hereinafter described, producers of coal were prevented from using the process on coal in order to make gasoline.

16. In the course of chemical research and experimentation in the petroleum field carried on chiefly in Europe by I. G. since the World War of 1914-1918, it was discovered that numerous chemical products could be likewise produced by the hydrogenation process. Furthermore, other methods of manufacturing synthetic gasoline were discovered, the most important being the so-called hydrocarbon synthesis process, by which carbon monoxide or carbon dioxide and hydrogen are combined to produce gasoline and other hydrocarbons. Among other things, chemists discovered that they could combine the olefinic hydrocarbons which are normally gaseous, such as butene and propene, to form liquid hydrocarbons having a higher boiling point. This is referred to as the polymerization process. It was likewise discovered that isoparaffins could be combined with olefins in the presence of sulfuric acid and other catalysts to produce hydrocarbons, in particular isooctane, a discovery which is the basis of the principal source of aviation gasoline today. The process known as hydroforming was likewise developed and serves today to produce a base material from which toluene for the explosive T. N. T., aviation gasoline, and other valuable products can be obtained. This process consists of reforming gasoline produced by distillation in the presence of hydrogen with or without a catalyst. During the same period several methods for more efficient refining were evolved from the general hydrogenation technique. These new methods involve the use of hydrogen or catalysts or both. These methods, in many respects, either are very similar to the process of hydrogenation itself, or involve a similar reaction or utilize technique developed in the practice of the hydrogenation process. In fact, they are to a large extent developments derived from that process. These several methods are generally referred to collectively as catalytic refining.

17. In summary, it may be stated that the general development of the petroleum industry since the World War of 1914-1918 has shown the close inter-relation

between the chemical and the oil fields. The products of each field to some extent may be made from products of the other. Today, a wide variety of chemical products can be manufactured from petroleum and petroleum derivatives, and by-products of the petroleum industry, formerly considered of little importance, or as actual waste, have been found of extreme usefulness in the manufacture of chemical products. Thus explosives, fertilizers, alcohols, solvents, plastics, synthetic rubber, wetting agents, as well as a wide variety of other chemicals, can today be produced more economically from petroleum than from any other source. This revolutionary development in the petroleum business, which was at one time confined to the production of gasoline, kerosene, and various fuel oils, has resulted in the extension of the petroleum field into the chemical field. If the normal development of the art had been followed, petroleum companies today would be engaged in manufacturing chemicals and chemical companies would be engaged in the manufacture of synthetic petroleum products. In the later years of the third decade of this century, these new developments in the petroleum field did not escape the notice of the leading chemical and oil companies. A direct result of this fact was the combination and conspiracy hereinafter described. In that combination and conspiracy, Standard and I. G. were the principal parties.

18. I. G., created in 1925 through a merger of various important German chemical companies, is the largest corporation in Germany and one of the largest industrial companies in the world. In 1939 it employed over 200,000 people in Germany, and had stated total assets of 1,623,609,000 R. M., although the actual value of the company's assets was in excess of that figure. In the chemical field, I. G. is the largest company in the world, its chemists forming an unequalled research staff. I. G. chemists have discovered, among other outstanding processes, the Haber-Bosch process for making ammonia from atmospheric nitrogen, and processes for the production of gasoline (from coal), synthetic rubber and sulfanilamide. In addition to chemicals such as dyestuffs, pharmaceuticals, fertilizers, and explosives, I. G. also produces film and other photographic supplies, rayon and other synthetic textiles, magnesium and aluminum, synthetic gasoline, synthetic rubber, and synthetic fats and oils.

19. In the course of administering its world-wide activities, I. G. has entered into, and is the dominant figure in, numerous cartel agreements, to which many important American manufacturers adhere. These cartels cover most chemical and oil products. In order to administer its American interests, in April 1929 I. G. organized in the United States a corporation then known as American I. G. and now known as the General Aniline & Film Corporation. From that date up to the outbreak of war between the United States and Germany, I. G. controlled and directed the affairs of this company. The General Aniline and Film Corporation is one of the largest manufacturers of dyestuffs in this country, supplying approximately 90 percent of the dyestuffs used by the Army and 80 percent of all of the dyestuffs consumed in this country. It is likewise an important manufacturer of films and other photographic supplies.

20. The market for I. G.'s chemical products has always been world wide, but the market for its oil products, as a result of the conspiracy hereinafter set forth, has been confined to Germany. Prior to the present war, over 60 percent of I. G.'s total output was sold outside of Germany, with large quantities of various products manufactured by it being exported to the United States. I. G. likewise manufactured many products in the petroleum field, but these were not sold outside of Germany, as a result of the conspiracy hereinafter set forth. Since 1936, important executives of I. G. have also served as officials of the German Government, being charged with the responsibility of making Germany self-sufficient under the Four Year Plan in chemicals and oil products. At the present time I. G. is supplying all the synthetic rubber and most of the synthetic gasoline, textiles, fats, and soaps which are essential for Germany's war economy.

21. Defendant Standard is at present a holding company, owning and controlling a large system of operating companies. With its subsidiaries it constitutes a fully integrated operator in the oil business, owning its own sources of crude oil, pipe lines, tank cars, tankers, refineries, and a complete distribution system. Its producing properties are located in the United States, Venezuela, Colombia, Peru, Canada, Dutch East Indies, Roumania, Iraq, and Iran. It has refineries in those countries as well as in England, Germany, France, and Italy. Substantially all of the oil products purchased or sold by the defendants move in interstate and foreign trade and commerce. In the course of conducting its business, Defendant Standard, through defendants Delaware and Louisiana, operates large refineries in the United States, located principally at Bayonne,

New Jersey, and Baton Rouge, Louisiana, and utilizes in said refineries crude petroleum produced by subsidiaries of defendant Standard in the states of Texas, Louisiana, and Oklahoma, or purchased from others in such states. Defendants Delaware and Louisiana market the oil products manufactured by such refineries in the eastern part of the United States, principally in the states of New York, Massachusetts, New Jersey, Pennsylvania, Maryland, Virginia, the District of Columbia, and North Carolina. Standard sells in and ships to foreign markets large quantities of crude petroleum produced and refined in the United States. Standard's assets aggregate over two billion dollars, which makes it the largest industrial company in the United States. It produces and refines more oil products than any other company in the world.

22. Defendant Standard, the present holding company of all Standard Oil properties, was incorporated in New Jersey on August 5, 1882. The original organization was dissolved, as a monopoly violating the antitrust laws, by a decree affirmed by the Supreme Court of the United States in 1911. The decree severed from the original Standard Oil system the Standard Oil Companies of Indiana, Ohio, Kansas, California, and New York. There remained in the original Standard Oil system only Defendants Standard and Louisiana and certain others of their subsidiaries. In or about April 1919, Standard acquired approximately a two-thirds interest in the Humble Oil Company of Texas, a large operating company. Standard's interests therein at present are approximately 70 per cent. Thereafter the Standard Oil Company of New Jersey was incorporated in Delaware to take over the operating business of Standard itself. At the present time Standard is the owner in whole or in part of over two hundred subsidiary companies operating in the United States and in the other countries above mentioned. Standard's assets are located approximately one half in the United States, and one half in the rest of the world. For the year 1937, Standard's total gross income amounted to more than \$1,300,000,000 and its net profit to more than \$147,000,000. Standard's business in the Far East is conducted through the Standard Vacuum Company, owned 50 percent by Standard, and 50 percent by Socony-Vacuum. Its production in Iran, Iraq, and elsewhere is in joint interest with other leading oil companies. Standard has entered into arrangements with the Royal Dutch Shell Oil Company, sometimes hereinafter referred to as "Shell", and other important oil companies, which regulate the marketing of petroleum products throughout the world. In 1940, Standard made arrangements with Shell to pool all of their patents throughout the world outside of the United States.

23. Standard owns a 65 per cent interest in the Standard Alcohol Company, the other 35 per cent of which is owned by the National Distillers Corporation. This company is engaged in the manufacture of industrial alcohols and other solvents. Standard and the General Motors Company each owns a 50 per cent interest in the Ethyl Gasoline Corporation, sole producer of tetraethyl lead which is an additive used in nearly all of the motor fuels marketed in America and elsewhere.

#### COMBINATION AND CONSPIRACY

24. Beginning on or about November 9, 1929, and continuously thereafter to the date of the filing of this information, the defendants and the co-conspirator, well knowing all the facts alleged herein, have engaged in an unlawful combination and conspiracy to restrain, and pursuant to such unlawful combination and conspiracy have restrained, trade and commerce in oil and chemical products among and between the several states of the United States, the District of Columbia, and with foreign nations, in violation of Section 1 of the Act of Congress of July 2, 1890, as amended, commonly known as the Sherman Act. As a part of such unlawful combination and conspiracy the defendants and the co-conspirator, I. G., have agreed, combined, and conspired to do the following unlawful acts, and have entered into the following unlawful agreements:

(a) To eliminate competition between Standard and I. G. in the manufacture and sale of oil and chemical products in the markets of the world, including the United States;

(b) To refrain from the manufacture and sale, or other exploitation, throughout the world (outside of Germany) including the United States, except jointly with each other, and under the control of I. G., of substantially all chemical products made from petroleum, coal, or natural gas, used as raw materials;

(c) To employ the combined patents, processes, and technical resources of the defendants and the co-conspirator in such a way as to induce other oil refiners to transfer their patents, processes, and know-how, present and future, to patent pools dominated by Standard in order that Standard might secure the advantage and use thereof for I. G. in Germany and for Standard in the rest of the world including the United States, and thereby prevent such other refiners from manufacturing and selling oil products better or cheaper than those of I. G. in Germany or than those of Standard in the rest of the world, including the United States;

(d) To acquire control, for the benefit of I. G. in Germany and of Standard throughout the rest of the world, including the United States, of all patents and processes for the synthetic manufacture of gasoline and other oil products by hydrogenation, and to prevent the use of coal for such manufacture;

(e) To acquire control of all patents and processes relating to pour point depressants and to eliminate competition by other oil and chemical companies in the manufacture and sale of such products;

(f) To acquire control of all patents and processes relating to synthetic rubber and to eliminate competition by other oil and chemical companies in the manufacture and sale of such products.

25. As a further part of such unlawful combination and conspiracy, the co-conspirator I. G. has combined and conspired with Standard to restrain interstate and foreign trade and commerce in oil and chemical products throughout the world outside of Germany by agreeing that I. G. was:

(a) Not to manufacture or sell oil products in any markets of the world outside of Germany, including the United States;

(b) To transfer to Standard the control of the manufacture and sale throughout the world (outside of Germany) including the United States of all chemical products which were closely related to the oil industry;

(c) To transfer to Standard all of its present and future processes, both patented and unpatented, relating to the oil industry solely for use throughout the world (outside of Germany) including the United States.

26. As a further part of such unlawful combination and conspiracy, defendant Standard has combined and conspired with the co-conspirator I. G. to restrain interstate and foreign trade and commerce in oil and chemical products throughout the world by agreeing that Standard was:

(a) To transfer to I. G. the control of the manufacture and sale of all chemical products, not closely related to the oil industry, which it might at any time in the future develop;

(b) To endeavor to restrain third parties from competing with I. G. in the manufacture and sale of chemical products throughout the world, including the United States;

(c) To refrain from competing, in the manufacture and sale of chemical products, with other chemical manufacturers bound to I. G. in cartel agreements;

(d) To sell in Germany oil products manufactured synthetically by I. G. by hydrogenation in preference to those produced from any source in the United States, and to give to I. G. the benefit of all its know-how in the oil and chemical fields, and to secure for the use of I. G. in Germany the patents of refiners all over the world who entered into any of the patent pools referred to in the preceding paragraphs.

#### *Means and Methods*

27. Pursuant to said illegal combination and conspiracy, the defendants and I. G. have entered into and carried out various and sundry unlawful contracts, agreements, and arrangements, and have performed various unlawful acts which are the means and methods of said combination and conspiracy. Among such unlawful contracts, agreements, arrangements and acts are the following:

28. On or about November 9, 1929, Standard and certain other defendants and I. G. entered into four agreements, drafted as separate documents but all forming part of a common understanding and arrangement, which common understanding and arrangement was one of the chief means and methods of carrying out the illegal combination and conspiracy herein charged. These four agreements are hereinafter set forth.

29. The first of these agreements, hereinafter sometimes referred to as the "Division of Fields Agreement", is an agreement, a copy of which is attached hereto and made a part hereof and marked Exhibit A, dated November 9, 1929,

between Standard and I. G. By this agreement Standard agreed to transfer to I. G. control of the manufacture and sale of any new chemical development not closely related to the present Standard business and I. G. agreed to transfer to Standard control (outside of Germany) any new chemical developments closely related to the oil industry, and I. G. also agreed to share with Standard (outside of Germany) any new chemical development using petroleum or natural gas as a raw material, but under I. G.'s control. This agreement reads as follows:

AGREEMENT made and entered into this 9th day of November 1929, by and between:

I. G. FARBENINDUSTRIE AKTIENGESSELLSCHAFT, a German corporation, of Frankfurt am Main, Germany, hereafter referred to as "I. G.", and

STANDARD OIL COMPANY, a corporation incorporated under the laws of the State of New Jersey, hereinafter referred to as "the Company".

WHEREAS I. G. and the Company are two of the four parties named in the agreement of even date herewith, a copy of which is annexed hereto, and the terms of which require close cooperation between I. G. and the Company, along technical lines; and

WHEREAS the Company recognizes the preferred position of I. G. in the industries known as chemical, and I. G. recognizes the preferred position of the Company in the industries known as oil and natural gas; and

WHEREAS neither party has any plan or policy of so far expanding its existing business in the direction of the other party's industry as to become a serious competitor of that other party, but each recognizes that certain overlapping of activities will exist;

Now, THEREFORE, with a view to preventing such overlap from becoming a source of mutual irritation and unwillingness to cooperate on technical lines as is required under said four-party agreement, the parties hereto have agreed that their policies shall be as follows:

#### ARTICLE I. NEW CHEMICAL DEVELOPMENTS BY THE COMPANY

If the Company shall desire to initiate anywhere in the world a new chemical development not closely related to its then business, it will offer to I. G. control of such new enterprise (including the patent rights thereto) on fair and reasonable terms.

*Examples:* a. A development not related at all is the production of artificial silk by present methods.

b. A development related but not closely related is the production of non-hydrocarbon solvents from natural gas.

#### ARTICLE II. NEW CHEMICAL DEVELOPMENTS BY I. G.

1. If I. G. shall desire to initiate outside of Germany (as "Germany" is defined in Article XIV of said four-party agreement) a new chemical development which cannot be advantageously carried on except as a department of an oil or natural gas business, it will offer control thereof (including the patent rights thereto) to the Company on fair and reasonable terms.

*Examples:* a. The production of solvents, whether hydrocarbon or non-hydrocarbon, from olefines produced in refining oils.

b. The production of an anti-knock compound to the extent that the name shall be sold to or through oil companies.

2. If I. G. shall desire to initiate outside of Germany (as "Germany" is defined in Article XIV of said four-party agreement) a new chemical development not covered by sub-paragraph 1 of this Article but related to the then business of the Company, as for example by use of natural gas or petroleum products, I. G. will offer to the Company a substantial but not controlling participation.

*Examples:* a. The production of fixed nitrogen from natural gas.

b. The production of acetylene from natural or refinery gas.

#### ARTICLE III. DURATION OF THIS AGREEMENT

This agreement shall be binding upon and inure to the benefit of the subsidiaries of the respective parties hereto as provided in Article XIII of said four-party agreement, to the same extent as if said Article were incorporated in this agreement, it being understood that no subsidiary cor-

poration of the character referred to in paragraph B of said Article XIII shall have the privilege of ratifying either the four-party agreement or this agreement without also ratifying the other.

IN WITNESS WHEREOF the parties hereto have set their hands and seals on the day and year first above mentioned.

By (Signed) I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT  
SCHMITZ V. KNIERIEM  
STANDARD OIL COMPANY (N. J.)  
By (Signed) W. C. TEAGLE

(Attest)  
(Seal)

30. The second of these agreements, hereinafter sometimes referred to as the "Four Party Agreement", is an agreement, a copy of which is attached hereto and made a part hereof and marked Exhibit B, dated November 9, 1929, between Standard, Delaware, I. G., and S. I. G. This agreement provides: (a) for the surrender by I. G. to Standard outside of Germany of the exclusive control of all present and future processes, both patented and unpatented, for the manufacture of products of the oil industry, and (b) for the rights and obligations of S. I. G., a corporation formed in order to carry out the purposes of this agreement, to which I. G. would transfer its patent rights in execution of those purposes. Standard agreed to transfer to S. I. G. exclusive licensing rights under its own present and future patents for the hydrogenation process. S. I. G. covenanted that it would enter into no business except that of granting licenses for a substantial royalty under the combined patents of Standard and I. G. It was agreed that from such royalties arising out of patents of both parties, S. I. G. would pay to I. G. 20 per cent of gross receipts, or a fixed rate from hydrogenation royalties. Such payments were to continue until the termination of the agreement, which was terminable only on two years' notice given at any time after December 31, 1945. Jersey and S. I. G. undertook in terms to obtain for I. G. German operating and licensing rights for the processes of S. I. G. licensees. As to present and future exchange of experience, the parties agreed in terms as follows:

*Exchange of experience*

A. The parties to work together on the technical development of the hydrocarbon field, to communicate to each other during the life and within the scope of this agreement all technical knowledge and experience, past, present and future, patented and unpatented, of which the parties are now possessed or shall hereafter be possessed in the sense of having the power to dispose of them, and also to help each other in their efforts to obtain adequate patent protection.

31. The third of these agreements hereinafter sometimes referred to as the "Coordination Agreement", is an agreement dated November 9, 1929, between Standard and I. G., a copy of which is attached hereto and made a part hereof and marked Exhibit C, which reads as follows:

Referring to the series of agreements dated November 9th, 1929, to which we are parties, we wish to state that it is our understanding that the discussions of the parties in connection with the negotiations of these agreements have shown that each party proposes to hold itself willing to take care of any future eventualities in a spirit of mutual helpfulness, particularly along the following lines:

In the event the performance of these agreements or of any material provisions thereof by either party should be hereafter restrained or prevented by operation of any existing or future law, or the beneficial interest of either party be alienated to a substantial degree by operation of law or governmental authority, the parties should enter into new negotiations in the spirit of the present agreements and endeavor to adapt their relations to the changed conditions which have so arisen.

Further, in the event the interest of either party should suffer from some cause which might be rectified by the change of the form of the agreements, while preserving their substance and the interest and obligations of the parties in the subject matter thereof, the parties should, and will endeavor to revise the form of the agreements in such particulars as may be necessary to overcome the difficulty encountered.



Both parties agree that in the event of an attack by a third party brought against either of them directly or indirectly, in attempted derogation of the title to patent rights transferred hereunder, they will cooperate loyally in defense of such attack.

This letter is intended to make a record of the discussions of the foregoing subjects and of the understanding which we have of the position and intentions of the parties and of the spirit in which the parties have agreed they will approach and endeavor to carry through the readjustment of their contractual relations if such readjustment is necessary for the protection of the interests of one party and does not diminish the effective rights or interests of the other party, as fixed by the original agreements.

32. The fourth of these agreements, hereinafter sometimes referred to as the "German Sales Agreement," a copy of which is attached hereto and made a part hereof and marked Exhibit D, was entered into on November 9, 1929, between Standard and I. G. Under the terms thereof Standard agreed to purchase through its German subsidiary D. A. P. G. the entire amount of synthetic gasoline produced by I. G. in Germany by the hydrogenation process and offered to D. A. P. G. On its part, I. G. agreed to give preference to Standard in its purchase of its crude requirements imported into Germany. Provision was made for readjustment in the future, giving certain rights to I. G. to purchase an interest in D. A. P. G.

33. In furtherance of the terms and provisions of the Four Party Agreement I. G. on or about June 21, 1930, executed a general assignment to S. I. G. of all of its patents considered wholly or principally useful in the hydrocarbon field, and gave S. I. G. an exclusive license for use in the hydrocarbon field for other I. G. patents which might be useful in the hydrocarbon field. The assignment and license provided that S. I. G. could use these patents only in the hydrocarbon field, with I. G. retaining the exclusive right to use the assigned and licensed patents in other fields. Such assignment and license were executed in terms as follows:

I. G. hereby assigns to S. I. G. the entire right, title and interest in and to all of its patent rights, as hereinafter defined, for the world outside of Germany, which relate wholly or principally to the hydrocarbon field, as hereinafter defined; this assignment shall be subject to an exclusive license (excluding also S. I. G.) and right to license others, reserved by I. G. under said patent rights, for all purposes outside of said field; this reserved exclusive license and right to license others shall be royalty free, shall run for the life of the patents in question, and shall be freely transferable by I. G.

\* \* \* \* \*

Under I. G.'s patent rights, as hereinafter defined, outside of Germany, which are useful in the hydrocarbon field, as hereinafter defined, but are also useful to a substantial degree in other fields, I. G. grants to S. I. G. an exclusive license (excluding also I. G.) and right to license others, but only in so far as they are useful in the hydrocarbon field, as hereinafter defined. This exclusive license and right to license others shall run for the life of the patents in question and shall be freely transferable.

\* \* \* \* \*

The term "patent rights", as used in the preceding paragraphs, means:

Any patents, applications for patent, divisions, renewals, reissues, and extension of patents and applications and transferable interests in any of the foregoing, for any and all countries except Germany, of which I. G. now have or may before November 9th, 1947, have the ownership or control in the sense of having the power to dispose of them or grant licenses thereunder in so far as they are not precluded from so doing or bound to others to account for so doing by contracts with others in force on November 9th, 1929, nor shall I. G. be deemed to have ownership or control of any patent rights relating to the hydrocarbon field because such patent right is owned or controlled by a corporation which is not in effect the sole property of I. G.

34. In furtherance of said plan and conspiracy to restrain competition in the oil and chemical fields, Standard and I. G. devised and carried out two separate but interrelated plans for the exploitation of the hydrogenation process, one plan being for the United States and the other for the rest of the world, exclusive of Germany.

35. In order to exploit the hydrogenation process in the United States, the Hydro Patents Company, sometimes hereinafter referred to as H. P., was incorporated, in accordance with a plan embodied in documents and agreements dated July 11, 1930, and known as "The Mutual Licensing Plan of the Hydro Patents Company for the Hydrogenation Process", a copy of which is attached hereto and made a part hereof and marked Exhibit E. This plan was calculated: (a) to prevent the utilization of coal for the production of petroleum products, and thus exclude coal operators from the oil business; (b) to prevent any person from utilizing the hydrogenation process to the detriment of Standard or I. G. by upsetting the existing status quo in the oil business; (c) to prevent competition among oil refiners; (d) to secure for I. G. in Germany and for Standard in the rest of the world, including the United States, the benefit of all present and future methods and discoveries in the practice of hydrogenation, then the only feasible method for the production of synthetic gasoline and other oil products, thereby preventing other oil companies from manufacturing and selling cheaper or better synthetic oil products in competition with I. G. in Germany and Standard in the rest of the world, including the United States; and (e) to prevent oil companies from utilizing the hydrogenation process for the manufacture of chemical products.

36. As a further part of their agreement as to the licensing of the hydrogenation process, and in order to carry out the objectives of the plan, Standard and I. G. agreed to confine the licensing of the said process to the major oil companies in the United States. In pursuance of such plan, H. P. was organized to own, hold, and license patents. On or about July 11, 1930, S. I. G. transferred to H. P. the exclusive licensing rights for the United States for the hydrogenation process. Thereupon, Standard invited the largest oil refiners in the United States to acquire stock in the said company and licenses for the practice of the hydrogenation process under the plan formulated for that purpose.

37. These large refiners were offered shares in an amount roughly proportionate to their daily crude production, at a price of \$53.00 per share. A minimum subscription of from \$26,500 to \$80,825, according to the extent of the company's operations, was required. Standard subscribed at the same time to 3,310 shares, and thereafter raised its total holding to 10,000 shares, all purchased at \$3.00 a share. Standard informed the prospective licensees that the plan would offer them the combined patents and processes of I. G. and of Standard for the practice of a new process for the production of synthetic gasoline and other oil products. These processes were described broadly as revolutionary in nature, but no details as to the processes were given.

38. Those invited to participate in the Hydrogenation Plan as aforesaid were thus compelled to subscribe to the respective minimum number of shares without being afforded any opportunity whatsoever of ascertaining the value of the process. Under the terms of the plan, those invited would have, after payment of their initial subscription, a period of six months, beginning during the year 1930, within which to acquaint themselves generally with information as to patents, methods and costs involved in the practice of the process. They were not, however, to be given the actual details of operations, such as would be necessary for a licensee for the practice of the process. At the end of this six months' period, subscribers were, under the terms of the plan, compelled to increase their subscription ninefold, making a total minimum subscription of \$238,500 for the smallest refiner, in order to preserve their original investment. Upon failure of any licensee to make such further subscription, its shares would be sold back to H. P. at \$1.00 per share. On payment of such further subscription, the subscriber received a license limited to a daily barrelage capacity equal to the number of shares theretofore subscribed by such shareholder, but requiring specified running royalties.

39. Thereafter, the terms of the plan gave stockholders a period of three years within which to subscribe to further shares and acquire licenses for further capacity equal to the aggregate shares purchased by such stockholder. Any stockholder failing within this period to subscribe to a minimum of 20,000 shares thereafter lost any further right of subscription, and the licensed capacity of such stockholder was thereupon frozen at the amount of shares theretofore subscribed. Non-stockholders were required to pay running royalties more than double those charged to stockholders.

40. The plan specified that out of the \$53,000 paid to the Hydro Patents Company for each share, \$50.00 would be immediately payable by H. P. to S. I. G. to cover the purchase of the paid-up license, up to a specified capacity. Stockholder-licensees were required to pay high running royalties of stated

amounts per barrel of feed, plus varying additional amounts for specified products derived from the process to S. I. G. H. P. would have no source of income to be distributed to its stockholders other than from licenses granted to non-stockholders. As required by the basic agreements between Standard and I. G. heretofore stated, running royalties payable to S. I. G. were credited 80 per cent to Standard and 20 per cent to I. G., although this fact was not disclosed to the other stockholders.

41. The Hydrogenation Plan required that all licensees desiring to practice the process should employ defendant Engineering, a wholly owned subsidiary of Development, to prepare and supervise the necessary plant design and engineering. For these services the plan required licensees to pay to Engineering four per cent of such licensee's total capital cost of installation of the hydrogenation plant or equipment. The licensees were forbidden to sell catalysts, or, before July 1, 1938, to manufacture them, and thereby were, in effect, required to purchase all catalysts essential to the operations of the process from defendant Engineering for a period of eight years. They were also required to give defendant Engineering a non-exclusive license thereafter on all of their present and future patents relating to the use of catalysts.

42. All licensees under the plan were required to grant to Hydro Patents Company the right to grant non-exclusive royalty-free licenses to all other licensees on all their present and future hydrogenation patents, except that the licenses upon their catalyst patents were to be granted to Engineering only. Licensees under the plan were also required, though no foreign rights were given to them under the plan, to transfer to H. P. the right to grant similar licenses under all their present and future foreign patents to I. G. in Germany, and, outside of Germany and the United States, to all licensees of S. I. G. who would in return cross license back to such licensed. The foreign rights ostensibly cross licenses to H. P. were in fact cross licensed to S. I. G., since by the terms of the plan the former was required to grant such rights to the latter. Licensees were also required to furnish engineering reports upon operation and performance in all of their hydrogenation plants. Engineering was given the right to inspect all of the plants and processes of licensees in the practice of hydrogenation and was thus given a complete intelligence service upon all hydrogenation in the United States; furthermore Engineering was obligated to transfer all of this information to S. I. G. and S. I. G. was in turn obligated to transfer all of this information to I. G.

43. The following companies accepted the Hydrogenation Plan:

- Standard Oil Development Company
- Standard Oil Company (Indiana)
- Standard Oil Company of New York
- Standard Oil Company of California
- Shell Union Oil Company
- The Texas Company
- Gulf Refining Company
- Richfield Oil Company of California
- Sinclair Refining Company
- Union Oil Company of California
- Atlantic Refining Company
- Pure Oil Company
- Cities Service Company
- Continental Oil Company
- Standard Oil Company (Ohio)
- Mid-Continent Petroleum Corporation
- Vacuum Oil Company
- Skelly Oil Company
- Barnsdall Corporation

Of the above companies, the Richfield Oil Company of California and the Gulf Refining Company were admitted to the plan on September 9, 1930 subsequent to its inception. After the foregoing companies had accepted the plan and agreed to all of its provisions, the subscription requirements were greatly reduced, because of economic conditions, by common action taken by all parties amending the plan as of May 9, 1933.

44. The plan devised for the exploitation of the hydrogenation patents of S. I. G. for the world outside of Germany and the United States, among other things, was calculated (a) to compel oil companies marketing oil products throughout the world, by agreeing upon quotas to be enjoyed by each of such

companies in the sale of products manufactured by the process, not to disturb existing competitive situations in the various markets, (b) to discourage foreign countries, except Germany, from manufacturing petroleum products out of coal, and in cases where foreign governments insisted upon so doing to utilize S. I. G.'s control of the hydrogenation patents to prevent such foreign governments from disturbing the existing methods of marketing oil products in such countries, (c) to prevent one of the largest foreign chemical companies, Imperial Chemical Industries, Limited, from producing hydrogenation chemical products either in the United States or abroad, whether for sale abroad or in the United States, and (d) to prevent oil companies operating abroad from producing chemical products by the hydrogenation process.

45. In furtherance of this plan for controlling the hydrogenation process, Standard offered to the Shell Company (after Standard the largest oil company in the world) a partnership in the exploitation of the S. I. G. hydrogenation patents in the world outside of the United States and Germany. In effectuating this purpose, Standard transferred to International Company of Vaduz, Liechtenstein, hereinafter sometimes referred to as "Vaduz", for the sum of \$11,590,299.10 all foreign hydrogenation rights held by S. I. G. Standard next caused the formation of the International Hydro Patents Company, sometimes hereinafter referred to as I. H. P. and caused Vaduz in turn to grant to this company the licensing rights in respect of all S. I. G. foreign hydrogenation patents and processes.

46. The partnership with Shell took the form of a sharing of interest in I. H. P. A series of agreements with Shell and various licensing companies were concluded by Standard and Shell purchased for \$10,500,000 (\$7,500,000 in cash and \$3,000,000 in future I. H. P. royalties) a fifty per cent interest in I. H. P. The agreement specified that the Board of Directors should in all cases represent Standard and Shell equally. Under the terms of the arrangement, Standard and Shell were each given the right to require the issuance of hydrogenation licenses to certain defined companies. It was agreed, however, that licenses should not be issued to an extent, or in a manner, to disturb the existing marketing position of the respective companies. Provision was also made for the inclusion, in the future, of Anglo-Iranian upon a basis proportionate to its existing marketing position.

47. A comprehensive detailed concept of maintenance of the status quo in the world marketing position of the respective companies was formulated and expressed in the series of agreements described in paragraphs 45 and 46 above. The period of reference for the status quo was the marketing position of Standard and Shell as of the year 1928. By detailed provisions for intercompany licenses and cross licenses, all present and future hydrogenation patents of Shell and of future licensees of I. H. P. were made available through S. I. G. to I. G. in Germany and to Standard in the United States. It was specified in this agreement that no license for production of petroleum products from coal should be given to the Union of Socialist Soviet Republics, except on condition that the products manufactured under such licensing should be delivered to I. H. P. or its nominee. For the purposes of exploiting the hydrogenation process abroad, Standard also formed International Engineering to perform abroad the same functions as that performed by Engineering in the United States, and International Engineering entered similar agreements with respect to foreign operations.

48. As a part of the plan described in paragraph 44 above, an agreement was also concluded as of April 10, 1931 between I. H. P. and I. C. I., the largest chemical company in the British Empire. I. C. I. had developed patents for the operation of the hydrogenation process independent of those of I. G. and Standard, and also had acquired operating rights under the various Bergius patents. By this agreement I. C. I. surrendered all of its rights throughout the world to I. H. P., and took in return a non-exclusive operating license within the British Empire. The license to I. C. I. was restricted to the hydrogenation of coal to produce products in the oil industry and these not in excess of 25 per cent of the total consumption of such products in the British Empire. I. C. I. also was required by the agreement to turn over its entire production to the members of I. H. P., namely, Standard and Shell, for distribution by them through their marketing facilities. After the issuance of the license, I. C. I. and I. H. P. endeavored to persuade the British Government that it was inadvisable to erect hydrogenation facilities in England for the production of synthetic fuel.

49. In order to consolidate its position of dominance in the world oil field, by controlling methods of making synthetic gasoline competitive with the hydrogenation process, Standard entered into a series of agreements dated October 7, 1938,

with Ruhr-Chemie, I. G., Shell and Kellogg, copies of which are hereto attached as a part hereof marked Exhibit F. The purpose of these agreements was to bring under unified control the various competing methods then in existence for the synthetic manufacture of hydrocarbons by means of hydrocarbon synthesis, the above mentioned parties to the agreements each having its own patents in this field.

50. Prior to 1936, Ruhr-Chemie, a corporation organized and existing under the laws of Germany and owned by the seven largest German steel companies, had perfected a process, sometimes hereinafter referred to as the Fischer-Tropsch process, which could be used to manufacture synthetically hydrocarbons and a wide variety of chemical products from hydrogen and carbon monoxide or carbon dioxide. Research in this process in Germany was made under pressure by the German government, and by the stimulation of practically unlimited grants of money from the Government. The process when originally developed was the sole feasible one for the synthetic production of gasoline competitive with hydrogenation. It had the competitive advantage of being capable of operation on a small scale with a low capital investment. The process was of particular potential importance to the oil industry in the United States, in view of the possible utilization of the large available quantities of natural gas, coal gas, and refinery gases. The M. W. Kellogg Company, sometimes hereinafter referred to as Kellogg, in the meantime had developed in the United States, independently of Ruhr-Chemie, a similar process, and was planning to go ahead and produce gasoline synthetically from natural gases by its own process and to license others for this purpose. I. G., Shell, and Standard had likewise developed patents in this field.

51. In order to prevent the independent development of the synthetic process described in paragraph 50 above, Standard, in 1938, acting in behalf of itself, I. G., Shell, and Kellogg, purchased from Ruhr-Chemie for the group the exclusive right to exploit the Fischer-Tropsch process in the United States for all purposes, and the right to a 50 per cent participation with Ruhr-Chemie in its exploitation outside of the United States, except in Germany, in which country I. G. secured the exclusive right to exploit such processes for all purposes. Standard, I. G., Shell, Kellogg, and Ruhr-Chemie thereupon entered into the series of agreements dated October 7, 1938, referred to in paragraph 49 above, which provided, among other things, for the creation of a corporation known as the Hydrocarbon Synthesis Corporation, sometimes hereinafter referred to as USAC, for the exploitation of the Fischer-Tropsch process in the United States and Canada. Fifty per cent of the stock of USAC was to be held by S. I. G., 25 per cent by Shell, and 25 per cent by Kellogg.

52. Ruhr-Chemie agreed to place exclusively at the disposal of USAC for exploitation in the United States and Canada, without restricting the process to the oil field, all of Ruhr-Chemie's patents and information, present and future, until 1952, for the practice of the hydrocarbon synthesis process. Standard, Shell, Kellogg, I. G., and S. I. G. placed exclusively at the disposal of USAC, for exploitation in the United States and Canada, all of their patents and processes, present and future, for the practice of the hydrocarbon synthesis process for the purpose of producing hydrocarbons of the petroleum type reserving to the parties certain operating rights and also restricting licensing rights in respect of their own patents. The agreements contained a definition of the latter expression, "hydrocarbons of the petroleum type", identical in terms with the definition of the hydrocarbon field embodied in the Four Party Agreement between Standard and I. G. Grants similar to those described above were made by the parties as to processes for the production of the gases to be synthesized but the use of the processes was limited to the practice of hydrocarbon synthesis. By this grant the methane steam process for the production of hydrogen was made available, but solely for the purposes of hydrocarbon synthesis.

53. By the terms of these agreements dated October 7, 1938, Kellogg was made the licensing agent of the USAC patents and the power to grant such licenses was retained in USAC. It was specified in terms that USAC should not grant licenses without endeavoring to obtain back from the licensee royalty free licenses, if possible exclusive, for the entire world including the United States. The parties moreover agreed by an oral understanding that USAC would not in practice issue any licenses unless the licensee did in fact give such cross license. Kellogg was also given the right to exploit the hydrocarbon synthesis processes, but only in seven counties in Texas, with the further limitation that it could not produce more than 25,000 barrels of liquid products by these proc-

esses per day. The other parties agreed to use no subsequently acquired competitive acreage of oil lands in those Texas counties in the practice of this process.

54. These agreements further provided that I. G. was not to have any rights to exploit the Fischer process outside of Germany for the production of oil products. Only Standard and Shell were given the unlimited right to use USAC's patents and processes for the production of products of the oil industry. The agreements limited the use of USAC's process for the production of hydrocarbon products different from products of the oil industry and used as raw material for the production of chemical products, by requiring that I. G., Jersey, and Shell should confer with each other in advance with a view to reaching an agreement between the three parties by which any prejudice to the interest of any of the three parties as a result of the intended use of the process would be avoided. If the process were to be used for the production of chemical products directly, the approval of I. G. was required.

55. By a side agreement between Standard and I. G., forming one of the series of agreements dated October 7, 1938 and affecting an amendment of the Four Party Agreement between Standard and I. G., it was agreed that S. I. G.'s 50 per cent representation upon the Board of USAC should be voted in Standard's interest as to the production of oil products, and in I. G.'s interest as to the production of chemical products. This side agreement extended the herein alleged combination and conspiracy in that, for the purposes of hydrocarbon synthesis, it extended from 1947 to 1952 the period within which I. G.'s future patents should be brought into S. I. G. to be subject to the Four Party Agreement and Division of Fields Agreement between Standard and I. G. Standard's hydrocarbon synthesis processes, which were considered hydrogenation processes within the definitions set forth in the Four Party Agreement, but not within the definition of the Hydrogenation Licensing Plan, were also brought within the said agreements between Standard and I. G. for the further period from 1947 to 1952. It was also agreed in this side agreement that in consideration of the fact that certain developments in the chemical field might result from the research work of USAC, the members of the Board of USAC to be elected by S. I. G. should be designated half by Standard and half by I. G., in spite of the fact that I. G.'s interest in S. I. G. was only 20 percent and Standard's was 80 percent. Standard agreed to cooperate with I. G. to insure the carrying out in good faith by USAC, in connection with the chemical field of the internal agreement between the hydrocarbon synthesis partners, as stated in paragraph 54 above, which in terms carried out Standard's and I. G.'s Division of Fields Agreement.

56. By further separate agreements, forming part of this related series of agreements referred to in paragraph 49 above, the parties thereto on October 7, 1938 formed the International Hydrocarbon Synthesis Corporation, hereinafter sometimes referred to as I. H. S., to which all the parties through I. H. P. granted exclusive licensing rights to their patents and processes, present and future, in the hydrocarbon synthesis field for the world outside of the United States and Canada. The capital stock of I. H. S. was issued 50 percent to Ruhr-Chemie, 50 percent to I. H. P. I. G.'s continuing interest therein was reflected by a provision for the payment to it of a certain percentage of the royalties. Kellogg was denied the right to any licenses from I. H. S. Licenses by I. H. S. for chemical purposes were subjected to similar restrictions as those stated in paragraphs 54 and 55 above. For the purpose of effecting a coordination in licensing policies between I. H. P. and I. H. S., and for the purpose of joint control of the synthetic petroleum production field, I. H. P. was likewise made a party to this series of agreements. A pooling of revenues between these two corporations, and a combination of their grants of licenses was agreed upon. The effect of these agreements was, in substance, to give Standard, with Shell, complete control throughout the world outside of Germany of all important processes for the synthetic production of petroleum products. In Germany, by the terms of the agreement, I. H. S. granted to I. G. exclusive licenses and licensing rights for use of the process for all purposes. I. H. S. agreed to recommend German construction firms to all foreign licenses.

57. Prior to 1935, M. W. Kellogg Company, the Texas Company, the Standard Oil Company (Indiana) and Development had developed processes for the polymerization of hydrocarbon gases for the manufacture of gasoline and other hydrocarbons, which, in accordance with the Basic Agreements of November 9, 1929, was duly brought by Standard within the conspiracy herein set forth. Accordingly, on or about September 1935, these four companies and the Phillips Petroleum Company entered into an agreement which provided for the organization

of a corporation called the Polymerization Processes Corporation (hereinafter sometimes referred to as Polycor) for the purpose of holding and administering licensing rights under the processes belonging to the parties in the defined field.

58. The parties agreed to grant to the new corporation the right to grant licenses for the production of liquid hydrocarbons, except lubricating oil, by gas polymerization under their respective patent rights, provided that grants of foreign rights should be contingent on reciprocal cross-licensing. Each party retained the right to grant releases and licenses under its own patent rights on its own terms. Phillips, Texas, Indiana, and Jersey were to get fully paid, non-exclusive, non-transferable licenses from the new corporation. Phillips was to get 10 per cent of the gross cash receipts of the new corporation and the first \$1,300,000 of net earnings available for dividends. Polycor was duly organized, and it has licensed certain other oil companies under the pooled patents. The agreement was supplemented in or about June 1937, to include the Gasoline Products Company as a participant and to broaden the definition of polymerization. The supplemental agreement was again amended in or about December 1937, to modify the term catalyst so as to include sulfuric acid catalysts.

59. To prevent I. G.'s patents in the polymerization field from passing on to Polycor, S. I. G. quitclaimed back to I. G. all of I. G.'s patents in this field. Standard concealed from the other parties to the polymerization agreement the fact that it had the right to dispose of I. G.'s patents in this field. Subsequently, in or about 1937, the German Government became interested in utilizing the polymerization patents and processes of Polycor, especially for the manufacture of aviation gasoline, and I. G. requested Standard to assist in securing a license to use Polycor's patents and processes for Germany. Standard thereupon procured from Polycor a license to I. G. to use Polycor's processes in Germany in exchange for the licensing by I. G. to Polycor of I. G.'s patents in this field outside of Germany. In order that I. G. might secure the rights desired by the German Government, Standard permitted I. G. to utilize patents and processes which belonged to S. I. G.

60. A further development of the conspiracy herein took place in or about April 1939, when Development became a party to an Agreement with Texaco Development Corporation, Shell Development Corporation and Anglo-Iranian Oil Company, Ltd., by the terms of which the parties granted to each other certain rights and licenses in connection with their sulfuric acid alkylation patents. The British Government owns 56% interest in and exercises control of the Anglo-Iranian Oil Company, which was a party to the agreement. Each party was given the right to license others at prescribed royalty rates, the revenue from royalties to be divided 30% to Shell, 30% to Texas and 40% to Standard for itself and Anglo-Iranian. Each party retained the right to grant releases and licenses under its own patents, but 50% of the moneys received in the United States by each licensee from licensing its own patents and all moneys outside the United States were to be divided and paid over to all the parties. Kellogg and Universal Oil Products Company were made the licensing agents. Subsequently, in or about April 1940, provision was made for Universal's participation in the royalties.

61. Sulfuric acid alkylation is a process for making a high-quality blending agent for aviation gasoline. It is the process most extensively used for this purpose because of its high economy in operation and its high yields.

62. Standard, without any patent position in sulfuric acid alkylation, after threatening interference proceedings, induced first Anglo-Iranian and subsequently Shell, Texas, and Universal to pool their patents and technique and to admit Standard as a member of the pool.

63. Pursuant to the Four Party Agreement, Standard transmitted to I. G. all information and technique relating to sulfuric acid alkylation until in November 1939, the other members of the pool requested that Standard discontinue such exchange. Under the terms of the C. R. A. Memorandum of July 9, 1940, referred to in paragraph 73 below, Standard sought to acquire for S. I. G. the right to license I. G. to use the German patents of C. R. A. parties for sulfuric acid alkylation, but the grant of such right has not been executed.

64. In furtherance of the said combination and conspiracy between defendant Standard and co-conspirator I. G. charged in the complaint, Standard in or about the year 1938, began the lengthy series of negotiations and dealings leading up to the formation of C. R. A. This term is used to designate both the defined field of processes covered by the several Memoranda of Agreement thereon and the company proposed to hold the patent rights and technical information to be acquired, and also to designate generally the group of member companies associated in the pool. One purpose of Standard in promoting the formation of

C. R. A. was to acquire control of the new catalytic cracking, refining, and reforming processes, and to utilize its position in H. P. and its domination of the hydrogenation process and its possession of the present and future backing of I. G. to extend the control and the restrictions of the hydrogenation agreement to the broad field of new refinery operations covered by the new processes.

65. In or about the year 1938, I. G., Standard, Indiana, Kellogg, and other oil companies, developed new processes of cracking, refining, and reforming the lighter fractions of crude petroleum for the efficient and economical production of aviation gasoline, aromatic naphthas, and other valuable products. In these processes the use of catalysts greatly improved the efficiency of the reactions and the quality and selectivity of the product, and lessened the cost of operation. Many of these processes, for example reforming, were further improved by the use of hydrogen, out of which developed hydroforming. The technique employed in some of these new processes, and the nature and use of the catalysts involved were closely related to the same factors employed in the hydrogenation process, although that process as formerly practiced involved a net consumption of hydrogen in the reaction, and the new processes did not.

66. Numerous patents originating with I. G., and pooled with Standard under the Four Party Agreement, were useful for the practice of the new processes described in paragraph 65 above. Standard was thus in a position to attempt to achieve the purposes referred to in paragraph 64 above, in concert with I. G. In order to achieve this aim, Standard endeavored to promote a new agreement covering all the new fields, including those not using hydrogen as well as those using hydrogen, by offering all such processes to the members of H. P. at lower royalty rates, with the added inducement of throwing in the combined patent and technical resources of Standard and I. G., for all these operations, and an undertaking by I. G. to conduct additional research in such fields. Standard endeavored to promote this new agreement despite the fact that some of the processes were probably open to the members of H. P. under the Hydrogenation Plan. Pursuant to this plan, Standard therefore endeavored to procure the release by H. P. and by its stockholders of all claim they had to the new processes through their rights in hydrogenation. Standard continued lengthy negotiations extending from 1938 to 1941 to bring about an agreement accomplishing the above purposes.

67. Under date of October 12, 1938, a plan was formulated and assented to by Standard, I. G., Indiana, and Kellogg, with approval in principal, for the purpose of cooperation, by Anglo-Iranian, to the extent of throwing in its patents for rights under the group patents at rates as favorable as those to be charged Standard. This Memorandum of Agreement permitted Indiana to bring in Texas on equal footing with Indiana, because of a patent reciprocity agreement between them, and permitted Standard to bring in Shell on an equal footing with Standard, except for the special advantages enuring to Standard through S. I. G. The plan for distribution of royalties was arrived at not on the basis of patents held by the parties, but roughly upon the basis of their size in relation to the world's oil industry. In this connection, I. G.'s size was arbitrarily presumed to be the same as that of Standard. Special royalties were made payable to S. I. G. The general proportions of the royalty divisions on this basis were preserved throughout all the remaining C. R. A. Memoranda hereinafter referred to, with adjustments thereof necessary for the admission of Shell, Texas, and Universal.

68. On or about October 13, 1938, Standard and I. G. entered a separate agreement between themselves in respect to the new relationship. This agreement gave to I. G. a royalty share additional to that reserved to it under the Four Party Agreement between Standard and I. G., assured S. I. G. a further period for the exploitation of future I. G. patents under their agreements, and required Standard to advance to I. G. the latter's research expenses. Standard's advance to I. G. was to be made in the form of deliveries of oil by Jersey to I. G. in Germany, and to be repayable only out of I. G.'s royalties resulting from the pool in question.

69. Standard next endeavored to bring in Shell as a participant. This was necessary in order to prevent Shell's equal proprietorship through I. H. P. in foreign hydrogenation patents from obstructing a general world-wide settlement in these new fields. To satisfy Shell's interests and to spread the application of the agreement to other interests active in the field, Standard also brought Universal within the negotiations. Standard proposed to grant Universal the right to license, to companies not Universal immunity holders, all the patents



and processes of the proposed pool, and to grant to the proposed pool the right to license Universal's patents and processes in the defined field.

70. Upon this basis, Standard, I. G., Shell, Indiana, Texas, Kellogg, and Universal assented to the C. R. A. Memorandum of Agreement of August 15, 1939. The final execution thereof was prevented, however, by the present World War. On September 5, 1939, Standard acquired from I. G. its 20 per cent interest in the capital stock of S. I. G. and resumed the negotiations, reporting to the C. R. A. members that S. I. G. was now 100 per cent owned by Standard, and that S. I. G. was in a position to offer all the patents and technical assets of both Standard and I. G., and to perform all the obligations under the C. R. A. memorandum of both Standard and I. G., and to receive all the benefits of both. Thereupon, without disclosure of the continuing interest of I. G. in S. I. G.'s receipts, arising from the Four Party agreement of November 9, 1929 and the agreement of October 13, 1938, described in paragraph 61 above, between Standard and I. G., Standard brought about the formulation of a further C. R. A. Memorandum between the aforesaid parties, with the nominal exclusion of I. G., on April 17, 1940.

71. By a letter dated May 11, 1940, I. G., in furtherance of its combination and conspiracy, placed additional conditions on licensing under C. R. A., namely, first, to require the rates to be charged under all C. R. A. licenses for catalytic refining processes to meet a minimum of two and one-half cents per barrel, second, to pay I. G. 20 per cent of royalties from licenses under either Standard's or I. G.'s patents in the C. R. A. field, and third, to procure, at the time of the final execution of the C. R. A. agreement, Shell's agreement to undertake after the war the payments to I. G. specified in the C. R. A. Memorandum of August 15, 1939. Thereafter, I. G. also stipulated with Standard that Standard should obtain I. G.'s consent to all further important commitments to be assumed or privileges to be granted for the purposes of C. R. A. and Standard, continued to submit to I. G. all phases of its further negotiations with the parties, and such negotiations were always subject to the assent of I. G. As a result of these negotiations Standard induced the parties to formulate and assent to a final C. R. A. Memorandum, dated July 9, 1940, whereby a general settlement was made of their present and future patents and know-how in the defined C. R. A. field and whereby provision was made for the licensing and cross-licensing of such patents in the United States and throughout the world, and whereby also foreign patent rights and processes in fields outside of C. R. A. were to be granted, and rights within and without the C. R. A. field, including sulfuric acid alkylation, were to be granted to I. G. in Germany. The assent of Anglo-Iranian was also obtained, in consideration of favored royalties, for the purposes of cooperation by it in the granting of licenses under its patents in the defined field. Although the said Memorandum was never finally and formally executed, its terms were assented to by the Boards of Directors of the aforesaid parties, technical data and experience have been extensively exchanged thereunder, and grants of licenses have been made by the parties separately, but in accordance with the terms and restrictions of the memorandum. In furtherance of its undertakings to I. G., Standard until March 18, 1940, continued to furnish I. G. complete data and technical information upon all of the said processes deriving from the exchange of experience between the parties. As from March 18, 1940, however, Standard agreed to discontinue such exchange with I. G., and in the aforesaid letter of May 11, 1940, I. G. formally released Standard of the obligation to exchange C. R. A. information for the duration of the war.

72. Said memorandum of July 9, 1940, described in paragraph 71 hereof, embodies all of the restrictions preventing the manufacture of chemical products which were embodied in the Four Party Agreement between Standard and I. G., and also additional restrictions narrowing the use of certain of the processes to the production of naphthas and specified fuels. Use of the pooled patents for the manufacture of chemical products was permitted to the extent that these products constituted by-products normal in the operations of the oil industry generally. In effect, under the restrictions of the said Memorandum, the C. R. A. processes capable of producing toluene for explosives or butadiene for synthetic rubber, cannot be used for these purposes, except for the manufacture of such products only as by-products, and only in proportions normal for by-products in the oil industry. Under the terms of said Memorandum, Standard has endeavored to acquire the benefit of all present and future technique and development of members and licensees over the broad field of operations defined, and has endeavored to prevent licensing of the group patents, or disclosure of the

pooled information to any refiner who declines to give to S. I. G. the benefit of all his own patents and information, and to submit to the restrictions of said Memorandum.

73. The C. R. A. Memorandum, of July 9, 1940, provides that all of the oil company members license each other under their present and future processes and divulge to each other all information on the practice of the processes, and stipulates that no license may be granted to third parties as to any member's patents without requiring a cross-license by the licensee under all its present and future processes within the field, unless such member consents to a waiver of such cross-license. The right to grant licenses to third parties is placed in the hands of Kellogg, but under certain conditions to be returned to S. I. G., and such right is also placed in the hands of Universal, except that it cannot license Universal immunity holders.

74. The C. R. A. Memorandum of July 9, 1940 also provides for the formation of a special company, to be owned jointly by Standard and Shell, with participation therein by Universal, for the purpose of licensing all foreign patent rights acquired by the pool. Standard has in fact caused the organization in the State of Delaware of such a corporation under the name of the International Catalytic Oil Processes Corporation, hereinafter sometimes referred to as ICOP. Universal was required by the terms of the C. R. A. Memorandum to grant ICOP all of its patents throughout the world outside of Germany, Canada, and the United States for all processes outside as well as inside the fields included within the C. R. A. pool. The parties to the C. R. A. Memorandum are required to grant to C. R. A., or by substitution to S. I. G., licensing rights to all their present and future patents and processes within the field, with certain exceptions, outside of the United States, Canada, and Germany. C. R. A. in turn is required to empower ICOP to exercise such licensing rights with the participation of Universal. C. R. A. members are also required to grant to S. I. G. similar rights in Germany, reserving to themselves operating rights thereunder.

75. The C. R. A. Memorandum of July 9, 1940 authorizes each member to issue licenses under his own patents, but prohibits him from transmitting to his licensee technical information acquired from other members of the group. The Memorandum requires the members to use special efforts to avoid technical information acquired by any member of the group from being used in the chemical field or even in the oil field in cases where catalysts are not used, in their own operations or the operations of others and to prevent any disclosure to outsiders. Members were prohibited from disclosing to others than licensees under the group patents even their own information in the C. R. A. field except where necessary to protect their operating interests. Members were required to pay specified royalties to S. I. G. by definition and regardless whether such member required a license under any pool patent.

76. Another step in the carrying out of the conspiracy created originally by the four basic agreements of November 9, 1929, took place on or about October 27, 1933, when Standard, Development, Union Oil Company of California, Standard Oil Company (Indiana) and Kellogg (all of said parties being hereinafter collectively referred to as "Juik") entered into an agreement whereby the patents and processes of all Juik members relating to propane dewaxing, propane deasphalting, chemical treatment and solvent extraction of petroleum oil, termed by the parties "the Hydro-carbon Technique", were pooled. Defendant Development owned few patents in the Juik field and obtained its participation in the pool because of contributions from I. G. Each Juik member granted to the other a royalty free, non-exclusive license under its patent rights in the defined field. Any refiner applicant could obtain a license to practice the Hydrocarbon Technique from any one of the group or from all by paying the standard royalty rate. The M. W. Kellogg Company was appointed as licensing agent and received 3.79 per cent of the royalties. Each of the other three members of Juik received 32.07 per cent of all royalties.

77. The licenses granted by Standard and Indiana to the other pool members were limited by the licenses granted by both companies to the Hydro Patents Company of the International Hydro Patents Company relative to the treatment of oils produced by the hydrogenation of coal and Standard and Indiana declared they would not account to Union and Kellogg as to such licenses. On or about January 1, 1934, Juik executed an agreement with the Max B. Miller Company and the Shell Development Company in regard to the two solvent or Duosol extraction processes, which involve the treatment of petroleum lubricating oil stock to separate said stock or portions thereof into fractions of varying chemical and physical properties. Miller and Shell were interested in the duosol

process and the Juik group was interested in the single countercurrent process. By the terms of the agreement the Juik group granted to Miller the exclusive right and license to sub-license others under their patents but only to practice the duosol process. Miller in turn granted to Juik a similar license to practice single countercurrent processes under the Miller-Shell patent rights.

78. Agreements were also executed on or about July 1, 1934, between Juik and Shell in regard to propane dewaxing and between Juik and Texas on or about September 1, 1935, in regard to propane deasphalting. The Juik patent pool was augmented from time to time by the addition of patents that were admitted by the parties to be outside of the defined hydrocarbon technique field.

79. On or about October 12, 1934, the question first arose as to the position of I. G. with respect to the Juik licensing pool. On this date, defendant Howard wrote to the Union Oil Company that both Standard and Indiana had already granted a non-exclusive royalty free license to I. G. in Germany in the field of hydrocarbon technique through the hydrogenation agreements. He suggested that Union would be justified in granting I. G. a license of the same scope, and by so doing Union would avoid possible patent complications with I. G. and it would insure the fullest measure of cooperation with that company.

80. In or about the latter part of 1935, the Germany government was putting pressure on German industrialists to produce more lube oils in Germany, and I. G. thereafter informed Standard it was anxious to clear up the position in Germany vis-a-vis the Juik group and obtain the right to receive currently the experience of the Juik group in that field. I. G. was of the opinion it did not need a license under Juik patent rights, but was anxious to obtain all Juik information and experience. I. G. argued that there should be no thought of profit on the sale of German rights to I. G. in view of the Four Party Agreement, which, among other things, provided that Standard would endeavor to obtain from all licensees under I. G.'s patent rights licenses and rights to grant licenses under patent rights of such licensees, for Germany, similar to those granted to I. G. by Standard. On or about Aug. 12, 1936, defendant Currie admitted to defendant Howard by letter that this provision of the Four Party Agreement had been overlooked at the time of the negotiations on the Juik agreement. Defendant Currie on or about December 20, 1935, directed a letter to the parties to the Juik agreement, in which he said that it would be wise for all the Juik members to agree that they would disclose fully and promptly to I. G. the information and experience they have in the hydrocarbon technique field.

81. Union would not agree to this free exchange of information with I. G. This reluctance on the part of Union led to a modification of the Juik agreement on or about August 28, 1936. In this modification agreement, Standard purchased for the sum of \$15,000 the exclusive right to the hydrocarbon technique field, as described in the Juik agreements, for Germany. Union, Indiana, and Kellogg agreed that Standard could transmit to I. G. all information which Standard received from them on hydrocarbon technique, and Standard represented that it would transmit to Union, Indiana, and Kellogg all the information it received from I. G. I. G., although it was of the opinion that Standard should not be reimbursed for the money it paid to the other members of the Juik group for the exclusive right to practice in Germany the hydrocarbon technique, finally paid the money to Standard in or about June 1938.

82. On or about December 15, 1938, Standard granted to I. G. an irrevocable exclusive right to grant licenses in the hydrocarbon technique field as defined in the agreement. This exclusive licensing right was limited to Germany. In or about March 1940, I. G.'s rights for the practice of the hydrocarbon technique was extended to include Austria and the former territory of Czechoslovakia, and it was agreed by the parties to establish a consideration for the sale at a later date. The Juik agreement was reexecuted on or about January 1, 1938, and the most important change was to incorporate the agreement of August 28, 1936, whereby Standard purchased from the other members of the pool for I. G. the exclusive rights to practice the hydrocarbon technique in Germany.

83. In or about 1930, defendant Development discovered that Parafflow, a synthetic oil product invented by I. G., which was made by the aluminum chloride condensation of chlorinated paraffin wax on naphthalene, has the peculiar property of inhibiting the formation of paraffin wax crystals when mixed in minute proportions with natural wax-bearing lubricating oils: the pour point of the oil is thereby lowered; that is, the temperature at which the oil ceases to flow freely. Development claimed that the exploitation of this product came within the hydrocarbon field as defined in the Four Party Agreement, and proposed that, in view of the fact that each party had patents, a special agreement be entered

into as to Paraflow. I. G. was somewhat reluctant to agree with this contention but, none the less, on or about April 1, 1932, S. I. G., Development, I. G. and D. A. P. G. entered into a contract by which it was stipulated that I. G.'s patent rights relating to Paraflow came within the hydrocarbon field of the Four Party Agreement.

84. The agreement of April 1, 1932, provided: (a) for the world outside Germany, and including the United States, S. I. G. may grant to Development an exclusive license to make and sell Paraflow; (b) in Germany Paraflow is to be manufactured exclusively by I. G. and is to be sold exclusively by D. A. P. G., except that I. G. has the right to use Paraflow as a pour point depressant in lubricants compounded and sold or used by I. G.; and (c) Development may not export Paraflow into Germany without I. G.'s consent nor may I. G. export Paraflow from Germany without Development's consent.

85. Subsequently I. G. became dissatisfied with its share of profits under the Paraflow agreement. I. G. had developed a new pour point depressant which was called PVO. I. G. contended that PVO did not come within either the Paraflow agreement or the Four Party Agreement but recognized that under the Division of Fields Agreement I. G. was obligated to offer control of the new product to Development. Because Development believed that PVO would be a serious competitor to Paraflow, it was anxious to come to some understanding concerning the marketing of PVO.

86. On or about November 15, 1940, Development and I. G. agreed they would enter into an agreement covering all pour point depressants. Pending negotiations for a permanent agreement, Development suggested that, in view of war conditions, I. G. should sell Paraflow (but not PVO) in parts of the world outside of Germany which Development could not reach because of the war; and that on such sales I. G. should pay 35 percent royalties, 17½ percent to Development and 17½ percent to S. I. G.

87. While these negotiations were going on Development authorized I. G. to supply Paraflow to Socony-Vacuum Company in Yugoslavia in or about December 1939, the division of the profits to be settled by agreement at a later date. In or about October 1940, Development cabled I. G. permission to sell Paraflow or PVO in Hungary through D. A. P. G., subject to a later accounting. In August 1941, Development proposed, as a general temporary settlement, that I. G. sales of Paraflow in Development's territory, that is, all the world outside of Germany, be made through Standard's local companies.

88. Within two years after its introduction in the United States, about 75 per cent of the well-known nationally advertised and branded lubricating oils used in this country were being treated with Paraflow. On or about January 29, 1934 Development made an agreement with Standard Oil of California allowing the latter to sell Paraflow purchased from Development in the states of Oregon, Washington, California, Idaho, Nevada, Arizona, New Mexico and Alaska and Hawaii. On or about August 1, 1936, Development made an agreement with the Carter Oil Company allowing the latter to sell Paraflow in Oklahoma, Kansas, Nebraska, South Dakota, Colorado, and parts of Minnesota, Iowa, and Missouri. Every other purchaser of Paraflow must sign a license and sales contract under which he agrees to sell Paraflow only as a blend in oil. He is also required to take his entire requirements of pour point depressants from seller during a specified period. The net profit from the sale of Paraflow has been unusually high.

89. Many products competitive to Paraflow have appeared on the market from time to time but Development has been successful in removing or controlling them by agreements with the producers of such competitive products. Development by this practice of eliminating competitors has gained such control that Paraflow has no competition in the pour depressant market. In or about 1932, Mid-Continent Petroleum Corporation owned certain patent rights in the pour point depressant field. Defendant Development and Mid-Continent signed an agreement on or about May 17, 1932, by the terms of which Mid-Continent granted to Development an exclusive license under its patents and Development agreed to supply Mid-Continent's requirements of Paraflow at a discount of 33¼ percent from the current sales price. Mid-Continent has not since the date of the agreement manufactured any pour point depressants, but has purchased all its requirements of pour point depressants from Development.

90. L. Sonneborn & Sons, Inc., developed a competitive pour point depressant called Voltol. On or about April 9, 1934, Development entered an agreement with Sonneborn, the effect of which has been to stop the manufacture and sale of Voltol.

91. In 1936, Socony-Vacuum developed a product called Santopour which was considered by Development to be the most serious threat to Paraflow in the pour point depressant field. Socony licensed Monsanto Chemical Company to manufacture and sell the product. Santopour was known to be a much more effective pour point depressant than Paraflow. Monsanto sold this product at the same price as Development sold Paraflow. On or about July 22, 1936, defendant Howard began negotiations with Socony by stating that Socony in bringing out Santopour without taking up the subject beforehand with Development was guilty of business practices regarded as not reputable. He stated that the only reason Standard had kept out of certain fields, such as paint, was that Standard did not wish to come into a field already occupied by Socony. On or about August 27, 1936, Socony and Development agreed that during the negotiations neither party would cut prices and that Development would be permitted to bring the potency of Paraflow up to that of Santopour.

92. On or about October 8, 1936, defendant Howard wrote a memorandum of agreement reached by Socony and Standard, whereby Monsanto assigned its Santopour business to Development, and Development agreed to pay Socony 35 per cent of the profits on pour point depressants sold to persons other than Socony and defendant Standard. Subsequently, on the advice of counsel that a valid reason for combining the business of the two groups should be shown on the face of the agreement, another agreement was substituted for the above in which the alleged settlement was based upon the infringement of certain patents, although the parties recognized that no substantial question of infringement was involved.

93. One of the chief obstacles for complete agreement between Monsanto and Socony on the one side, and Standard on the other, was the fact that Standard insisted on paying royalties to S. I. G., thereby reducing the amounts payable to Monsanto and Socony, whereas if Standard operated under Socony's patents no such payments would be required. Under the agreement as finally executed on or about January 1, 1938, the manufacturing was divided between Development and Monsanto; Development, however, remained in complete control of the pour point depressant business. Monsanto and Socony granted Development a non-exclusive license to make pour point depressants. Development granted to Socony and Monsanto a non-exclusive license to make pour point depressants, but the amount that could be sold by them to others was limited to 20 per cent of the aggregate amount of pour point depressants sold to others under Development's patents by all of the parties during any one year. Monsanto and Socony agreed to pay Development 30 per cent of net sales price of any excess sold over this quota. Development agreed to buy a certain amount of pour point depressant from Socony and Monsanto each year. The agreement gave to Development the right to fix potency, specifications and prices under which Monsanto and Socony were permitted to sell pour point depressants; Development on its part agreed to sell pour point depressants on the same terms it fixes for Monsanto and Socony. All the parties agreed to sell pour point depressants only to purchasers who contract to take their requirements of pour point depressants for a certain period and not to resell the pour point depressant except if blended with oil. The agreement was to continue in force until on or about July 14, 1948.

94. On or about October 1936, Standard Oil of Indiana put on the market a pour point depressant which is called Pourrex. Less than two years later Development entered into an agreement with Indiana dated July 1, 1938, whereby Indiana transferred to Development a non-exclusive, unlimited, fully paid-up license under Indiana's patents for pour point depressants with the right to license and sub-license. Development, in turn, granted Indiana a non-exclusive license under Development's pour point depressants patents to manufacture and to use such depressants for Indiana's own products but not to sell them to others. Thereafter Indiana refrained from selling Pourrex to other oil companies.

95. By means of these various unlawful agreements, described in paragraphs 83 to 94, defendant Standard and I. G. have remained in control of the pour point depressant field.

96. As stated in paragraph 29 above, under the Division of Fields agreement, Standard agreed to transfer to I. G. control of the manufacture and sale of any new chemical development not closely related to the present Standard business. Prior to 1930, Standard and I. G. had perfected plans for the erection of a synthetic ammonia plant at Baton Rouge, Louisiana, to manufacture ammonia synthetically, using natural gas as a raw material. Under the terms of the Four Party Agreement, this production of a chemical product would be under the control of I. G. The ammonia produced was to be used either for

fertilizer purposes or for the manufacture of explosives. On hearing of this proposed venture, executives of the duPont Company protested to Standard and I. G. and inquired whether some cooperative plan or procedure could not be worked out, rather than have Standard and I. G. enter the field in competition with duPont and other chemical companies. At or about the same time, officials of I. G. and all of the leading producers of synthetic nitrogen, as well as the producers of Chilean nitrate, entered into negotiations for the formation of a world cartel. Negotiations between I. G. and duPont having reached a deadlock, Standard took the part of mediator.

97. On or about March 6, 1930, defendant Teagle arranged a conference in his office which included Dr. Krauch of I. G., Lammot duPont, E. M. Clark and defendant Teagle. At this conference, Dr. Krauch reviewed the present situation in the synthetic fertilizer industry in Europe as well as in the United States. He spoke of the carter arrangement that had been entered into between the principal producers of synthetic fertilizers and the negotiations with the Chilean nitrate industry. His view was that excess production and imports had created an oversupply that would make unwise and uneconomic the building of a plant in Louisiana of the capacity that had been contemplated. He stated there did exist, however, a potential market outlet for phosphate fertilizer, and it was now proposed that a small plant of not more than 7,500 tons capacity annually of nitrogen be erected. Lammot duPont indicated that his interest centered mainly on the production of synthetic ammonia for explosives. He was informed that the fertilizer project between I. G. and Standard contemplated other developments such as the production of hydrogen and that the work might lead into the chemical field. This possibility was discussed and the following conclusions were reached:

(1) "I. G. and Standard to proceed with their plan for the small synthetic ammonia plant and the production of nitro-phosphate fertilizer, ammonia sulphate, and/or anhydrous ammonia."

(2) "That these products be sold in markets not now economically available to the present fertilizer or ammonia industries, but that if, in the distribution of any of these products, present arrangements were to be disturbed, such specific situation should then be discussed, as there is no intention of upsetting the nitrogen market."

(3) As to other further plans, "a way should be sought by which the duPont interests could become associated with such new enterprise".

(4) "If in the development of the new process (this refers to the hydrogenation process) it is found the production of chemicals will be produced that are now commercially manufactured by the duPont interests, Standard and I. G. would discuss same with the duPont company and endeavor to find a way in which the commercial exploitation of such processes and products will best be carried on to the greatest benefit to each of the three parties."

98. The intervention of defendant Teagle and other Standard officials enabled duPont and I. G. to come to an arrangement as to the application of the cartel to the United States and on April 16, 1930, Dr. Bosch, then Chairman of the Board of I. G., wrote defendant Teagle as follows:

"I should like to thank you also particularly for arranging for a conversation with Mr. Lammot duPont and for the personal interest you have yourself taken in it. I believe that as a result of this intervention, the deadlock of the negotiations between duPont and I. G. has now been overcome, and that thereby our desire will be realized to reach a cooperation with this very energetic and cleverly proceeding firm, which we have tried to bring about for years. The reason for the failure of our former negotiations may be the lack of the right personal contact which now has been established, thanks to your personal interest."

Thereafter I. G. instructed Standard to abandon plans for the erection of a smaller factory for the production of synthetic nitrogen. Since that time defendant Standard has refrained from the production of synthetic nitrogen for use in the fertilizer or explosives fields.

99. The effect of the conspiracy on the production of methyl alcohol arises from the fact that under the basic Four Party Agreement, Standard was granted the right to use I. G.'s methyl alcohol patents only for the production of motor fuel. But Standard has discouraged the use of methyl alcohol as a motor fuel and consequently it has never manufactured any for this purpose.

Methyl alcohol is, however, widely used as an anti-freeze and as a solvent in the production of a wide variety of chemical products and Standard desired the use of I. G.'s methyl alcohol patents for these purposes.

100. Defendant Howard, accordingly, entered into negotiations with I. G. and on or about September 28, 1936, Standard and I. G. made an agreement termed the "Alcohol-Alkyl Chloride Agreement", a copy of which is attached hereto and made a part hereof and marked Exhibit G. By the terms of this agreement, I. G. granted to Development for the United States a royalty-free, non-exclusive, non-transferable license for the manufacture of methyl alcohol, but limited the use of the patents to anti-freeze. In turn, defendant Standard granted to I. G. for Germany a royalty-free, exclusive license for the manufacture of isopropyl and other ethers which are valuable blending agents for the production of aviation gasoline.

101. On or about December 26, 1939, a separate oral understanding was reached wherein the parties agreed that Standard would not export any methyl alcohol from the United States and I. G. agreed not to import any methyl alcohol into the United States. By a further separate understanding, Standard agreed with I. G. that it would not manufacture any methyl alcohol without first obtaining the consent of duPont, with which I. G. Farben had a commercial arrangement relating to methyl alcohol. When Standard approached duPont to ask their permission to be allowed to manufacture methyl alcohol, the duPont officials were not willing to grant such permission but instead offered to sell methyl alcohol to Standard at approximately the price it would cost Standard to produce it. As a result of these negotiations there was executed on or about December 29, 1938, an agreement between Standard Alcohol and duPont to run to December 31, 1939.

102. Under the terms of this agreement Standard agreed to purchase not less than  $2\frac{1}{2}$  million gallons and not more than 3 million gallons of methanol during the year at  $17\frac{1}{2}$  cents per gallon. The contract was renewed for another year on December 11, 1939, at the same price per gallon. In or about the early part of 1941, duPont notified Standard that they would be unable to supply its full requirements of Methanol. Standard thereupon decided to erect a factory for the production of this product.

103. Despite the Agreement of September 28, 1936, described in paragraph 100 above, I. G. did not at first furnish Standard with any information regarding the preparation of the catalysts necessary in the manufacture of Methanol, but placed the formula in the custody of its lawyers Hutz & Joslin, in New York City with instructions not to deliver it to Standard unless I. G. was unable to make delivery to Standard of such catalysts. It was not until April 2, 1941, that Hutz & Joslin furnished to defendant Howard the sealed envelope containing the methods of preparation for I. G.'s Methanol catalysts.

104. Defendant Standard, under the Division of Fields Agreement as described in paragraph 29 above, agreed to transfer to I. G. control of the manufacture and sale of any new chemical development not closely related to the present Standard business. If, on the other hand, I. G. should desire to initiate outside Germany a new chemical development which could not be carried out except as a department of the oil or natural gas business, I. G. should offer control thereof to Standard. Pursuant to this Division of Fields Agreement on or about September 30, 1930, I. G. and Standard entered into an agreement to form a joint company to develop new chemical processes, starting from petroleum, bitumens or natural gas and leading to new marketable products outside the fuel and oil business. Each party was given an option to bring into the joint company any such new chemical processes discovered by the other party. The joint company was to hold all such patent rights and have the authority to license them for all the world outside of Germany. The agreement also provided for the exchange of know-how and full technical cooperation. The net profits from each process pooled in the joint enterprise were to be divided 62.5% to the originator of the process and 37.5% to the other party.

105. The Agreement also provided that in the event that a new chemical product was developed the parties would attempt to reach a separate agreement as to how it should be exploited. In the case of failure to agree, the decision would rest with the party which would have been entitled to control of the process under the Division of Fields Agreement of November 9, 1929.

106. On or about October 23, 1930, in order to carry out the Agreement of September 30, 1930, a copy of which is attached hereto and made a part hereof and marked Exhibit H, Standard and I. G. formed a corporation called

Jasco, Inc. (Joint American Study Company) under the laws of the state of Louisiana. From that date until in or about September 1939, three processes were pooled in Jasco:

(1) Acetylene arc process—the manufacture of acetylene and acetylene derivatives from natural gas.

(2) Paraffin oxidation—used in the manufacture of fatty acids.

(3) Oppanol—a polymer of isobutylene a hydrocarbon gas. One form of Oppanol, known as Paratone, is used as an addition agent to improve the viscosity index of lubricating oils. This product comes within the "Division of Fields Agreement", hereinbefore described in paragraph 29, which provides that I. G. shall offer Standard control of new chemical developments such as the "production of an anti-knock compound to the extent that the same shall be sold through oil companies." When the product is sold outside the oil industry it is known as Vistanex. This product has a wide variety of uses, including electrical insulation, paper coating of food containers, waterproofing of cloth and artificial leather and adhesives.

107. On or about February 16, 1933, defendant Howard and August von Knieriem initiated a memorandum which was adopted and has been followed by their principals, Jersey and I. G., respectively, as a binding agreement. This memorandum, entitled "Oppanol for the World Outside Germany", contains provisions which:

(a) bring Oppanol in all forms and for all uses for the world outside of Germany into Jasco;

(b) give Standard control in commercial exploitation of Oppanol in the oil industry and I. G. control thereof for all other uses;

(c) provide for payment of a 20 per cent royalty by Standard to S. I. G. on sales of Paratone sold in the oil industry.

108. I. G., having control of Oppanol outside the oil industry, named the Advance Solvents and Chemical Company as exclusive sales agent for the United States. By 1936, Standard had developed considerable interest in Oppanol among non-oil industry customers, including du Pont, General Electric, and American Cyanamid. Sales by Standard to these firms were objected to by Advance Solvents and Chemical Company. I. G. raised the question of Advance Solvents and Chemical Company's exclusive agency with defendant Howard in 1936, and Standard was assessed with a penalty of \$79,631.20 for violation of the 1933 agreement, and this sum was paid to I. G. by Standard on or about April 21, 1937.

109. Defendant Howard had further discussions with I. G. in 1938 in regard to Vistanex, and a Memorandum of Agreement was reached on or about March 2, 1938. The Agreement provided:

(1) I. G. shall have the manufacturing and selling rights outside of the oil industry and outside of the United States and Canada, except where a quantity market was developed where it would be cheaper to draw from Standard than I. G. I. G. was to conduct the business for Jasco and to keep Jasco informed of its sales.

(2) United States and Canadian supplies were to be obtained from Standard for all purposes. Vistanex was to be sold exclusively through Advance Solvents. All matters in connection with the Vistanex business was to be reported to a Vistanex Committee composed of three, with one representative for Standard, one from Chemnyco and one from Advance. This committee was to be coordinating agency for the entire business of I. G., Standard and Advance in the manufacture and sale of Oppanol-Vistanex and Paratone, throughout the world outside of Germany and including the United States.

110. The Vistanex Committee held meetings covering the period from April 8, 1938, to August 11, 1939. The committee discussed and decided questions of price, marketing and prevention of sales to "price cutters" in the electrical cable industry.

111. The Oppanol-Vistanex field was included in the Hague Memorandum which is discussed hereinafter. The necessary result of the inclusion of the Oppanol-Vistanex field in the Hague Memorandum was the prohibition of sales by Standard to customers in the territory assigned to I. G. after September 25, 1939. An earlier instance of such a restriction on the exporting of Vistanex occurred in or about 1936, when Chemnyco was advised that I. G. desired to export from



Germany but felt disturbed by the low prices of Vistanex in the United States. Chemnyco was thereafter instructed by I. G. to see that no Vistanex was exported from the United States or Canada and thus to avoid competition with the material of German origin.

112. The exploitation of Vistanex in the wire and cable industry was initiated by a license agreement between Jasco and the Okonite Company, dated August 1, 1937. The agreement was cancelled on October 11, 1940. The Jasco-Okonite license provided for price-fixing of the cable although the patents licensed applied only to the insulation, and Jasco (through Advance Solvents) refused to sell Vistanex to any cable manufacturer without the approval of the Okonite Company.

113. The production of synthetic rubber was included within the combination and conspiracy alleged in this complaint. At the time of the formation of Jasco, the parties orally agreed that all processes for the manufacture and production of synthetic rubber would be brought into and exploited jointly by both parties under the provisions of the Jasco agreement. Under the terms thereof, I. G. was to have control of such developments. Thereafter, I. G. developed two products, one made from butadiene and styrene called Buna-S, which is especially used for the manufacture of tires, and the other made from butadiene and acrylonitrile, called Buna-N or Perbunan, which is useful for specialty purposes, and in particular where resistance to oil is necessary. By 1934, I. G. had fully developed both of these products and they were extensively used in Germany. So far as it is presently known, substantially all of the rubber requirements of Germany are supplied by I. G. by means of these two processes. I. G., however, refused to transfer the patents and processes to Jasco.

114. Since 1932, many of the American rubber manufacturers and chemical companies have approached Standard or I. G. in an effort to secure a license to use the Buna processes. Defendant Standard and I. G. adopted the policy of encouraging such companies to believe that they would soon grant such licenses, this policy being for the purpose of discouraging such companies from engaging in independent research work, and, at the same time, of discovering for the benefit of Standard and I. G. what progress such companies were actually making in this field.

115. In 1938, Standard developed a new process of making synthetic rubber, called Butyl, by polymerizing isobutylene with a small percentage of butadiene or other diolefines. This process had the advantage of producing synthetic rubber which was by far the cheapest and which had certain properties which made it more desirable for certain purposes than either Buna-S or Buna-N, or other synthetic rubbers. Particularly for inner tubes and certain other purposes, Butyl has been found superior even to natural rubber.

116. I. G. still refused to transfer its Buna processes to Jasco or make available any information concerning them to Standard because, as Standard was informed, the Hitler Government, for reasons of military expediency, refused to permit I. G. to do so, and, in the exercise of its control of the rubber field, I. G. refused to sanction any general program for the exploitation of synthetic rubber. Nevertheless, Standard decided that until this permission was granted, it would do nothing with regard to the exploitation of Buna rubber and would make no move without the consent of I. G., although I. G. was in default under the terms of its undertaking with Standard by failure to acquaint Standard with the Buna technique. Standard nevertheless decided to transmit samples and all information regarding Butyl rubber to I. G. Thereupon, I. G. informed Standard that it would attempt to secure the permission of the German government to transmit to Jasco information concerning the Buna processes. I. G. never obtained such permission and, consequently, has never transmitted any information regarding the Buna processes to Jasco, despite the fact that Standard has transmitted all information as to Butyl to I. G. until December, 1940.

117. Prior to 1932, duPont had developed a synthetic rubber then known as Duprene and subsequently called Neoprene, made by the polymerization of chlorinated butadiene, which could be used for many of the same purposes as Buna-N or Perbunan. I. G., duPont, and defendant Standard agreed that they would not sell any Buna-N in price competition with Neoprene. The parties further agreed that when, as, and if I. G. should consent to the exploitation of the Buna processes in the United States, Standard and I. G. would consult duPont before proceeding with such exploitation.

118. After the outbreak of the present World War, Standard and I. G. entered into negotiations to avoid having the Jasco patents, including the Buna patents,

from being seized by the countries with which Germany was at war. The agreement, termed the Hague Memorandum, was signed by defendant Howard on behalf of the other defendants and Fritz Ringer for I. G. at The Hague on September 25, 1939, but was made effective as of September 1, 1939. The agreement provides:

*Memorandum re Re-Adjustment of Jasco*

Whereas under an agreement of September 30, 1930, I. G. and the Standard Oil Development Company agreed to cause to be organized a jointly owned corporation, to which they should assign certain patent rights, and whereas pursuant to said agreement there has been organized a corporation of Louisiana, under the name Jasco, and whereas it has been heretofore settled and agreed between the parties that Jasco is, pursuant to said agreement, the equitable owner of all patent rights of the parties relating to certain processes known as follows:

1. Paraffin Oxidation,
2. Acetylene Arc Process,
3. Oppanol Process,
4. Buna process,

and whereas the parties desire to readjust their respective rights to and in the said processes and in any other processes which shall come within the said agreement of September 30, 1930, it is agreed as follows:

I. I. G. agrees to assign and transfer to the Standard Oil Development Company all of I. G.'s rights, title and interest in and to the stocks issued to it by and standing in its name on the books of the said corporation Jasco. It is understood that said stock is now held by Heidebach Ikkelheimer & Company of New York as security for a loan of £40,000.—made by Hambros Bank, Ltd. of London to I. G., but I. G. will in due course regain said stock and deliver it to the Standard Oil Development Company, and in the meantime the Standard Oil Development Company shall have record title, so that the Standard Oil Development Company may have the full right to vote said stocks and receive any dividends thereon. (Alternative, Standard Oil Development Company to pay off the loan and take the stock.)

II. The Standard Oil Development Company agrees that it and Jasco will enter into a contract or contracts with I. G., substantially as follows,

I. G. assigns, quitclaims and releases to Jasco all of I. G.'s rights, title and interest in and to the royalties or payments to I. G. provided for in said agreement of September 30, 1930, between I. G. and the Standard Oil Development Company, subject to which agreement and under the terms of which agreement Jasco has been the equitable owner of the processes heretofore listed. In consideration of the said release and quitclaim of I. G. to Jasco, Jasco shall assign, release and quitclaim to I. G. all of Jasco's rights, title and interest in and to the said processes for all countries of the world, except the United States of America, The British Empire, The French Empire (France, its colonies, possessions, protectorates and mandates) and Iraq.

III. It is understood that each party intends to promote the said processes in the territory in which it has exclusive ownership thereof to the best of its ability but subject entirely to its own discretion.

IV. On request of either party (Standard Oil Development Company or I. G.) made at any time after one year, and not more frequently than once each year thereafter, from the date hereof, the parties shall exchange reports of their respective returns from the promotion of the said processes, and if it shall appear from such reports that the division of territory of exclusive ownership between the parties as herein effected have not been equitable in its financial results as judged by the agreement of September 30, 1930, then the parties shall correct the inequity in such manner as may seem most fair and advantageous at the time.

Pursuant to the foregoing, I. G., the Standard Oil Development Company, and Jasco shall make or cause to be made any formal assignments or execute any further instruments necessary to put into effect the present re-adjustment and any required future re-adjustment of the rights and interests of the parties to the agreement of September 30, 1930.

119. The purpose of Standard and I. G. in entering into the Hague Memorandum was expressed in a letter dated October 12, 1939, from Defendant Howard to Defendant Parish, copies of which were transmitted to Defendant

Teagle and all the other directors of Standard, in which Defendant Howard stated:

Pursuant to these arrangements I was able to keep my appointments in Holland, where I had three days of discussion with the representatives of the I. G. They delivered to me assignments of some 2,000 foreign patents and we did our best to work out complete plans for a *modus vivendi* which would operate through the term of the war, whether or not the U. S. came in. All of the arrangements could not be completed, but it is hoped that enough has been done to permit closing the most important uncompleted points by cable. It is difficult to visualize as yet just how successful we shall be in maintaining our relations through this period without personal contacts.

120. By the terms of the Hague Memorandum, I. G. was to have a continuing interest in profits derived by Jasco from royalties under the patents of Standard and I. G. pooled in Jasco, including synthetic rubber patents, in the territory assigned by the Hague Memorandum to Standard, namely, the United States and the British and French Empires. I. G.'s continuing interest in Jasco is summarized in a letter dated October 16, 1939, from Defendant Howard to A. C. Minton, secretary of Standard, for presentation to the Board of Directors, in which Defendant Howard said:

The substance of the main proposal for readjustment of the Jasco arrangement is that in place of having the I. G. and Jersey jointly interested in these processes throughout the world outside of Germany, Jasco becomes 100% Jersey and takes over 100% interest in the processes for the U. S. and the French and British empires, while the I. G. takes over 100% interest in the same processes for the rest of the world. I believe this arrangement, when coupled with the provision for future readjustments, is entirely equitable, and that without regard to the possibility of legally enforcing the readjustment provision, it should be satisfactory in substance to us, as it is to the I. G. An attempt to put this provision in a form which would be fully legally enforceable might result in many difficulties, and (speaking for myself and the I. G. negotiators) it was not our intention to provide for any legally enforceable clause of this character in our arrangements.

121. The relationship of the parties created by the four Basic Agreements entered into on November 9, 1929, remained unchanged. Despite the Hague Memorandum, the Division of Fields Agreement was still left in effect in such a manner that I. G. could claim that it retained control over the Buna patents, and I. G. was consulted by Standard in the exploitation of the process.

122. Thereafter, I. G. sold its 50 per cent interest in Jasco to one Walter Duisberg, an I. G. representative in the United States, for \$4,000 (the original capital contribution represented by such stock), but was unable to make delivery of the stock because it was held by a bank in New York as security for a loan of £37,500 from the Hambros Bank in London, England, to I. G. Thereupon, I. G. resold its 50 per cent interest to Standard for \$4,000, and Standard agreed to discharge I. G.'s debt to Hambros, repaying itself from royalty payments to become due from Standard to I. G. Under the terms of the purchase, I. G. transferred its 50 per cent interest in Jasco to defendants Schaefer and Koechling, as trustees, under a trust agreement, a copy of the trust agreement being attached hereto and made a part hereof and marked Exhibit I. The purpose of the trust was to assure I. G. that defendant Jasco would secure royalties from any licenses issued by Jasco, and thereby protect I. G.'s interest in Jasco's profits, under its right to hold Standard to a future accounting to readjust Standard's receipts therefrom and I. G.'s receipts outside of Jasco in order to conform their shares to the basis provided by the Jasco Agreement of September 30, 1930.

123. Standard and I. G. have construed the Hague Memorandum to prohibit Standard from exporting any products manufactured by any of the processes in Jasco from the United States to any territory outside of the British and French Empires, and likewise to prohibit I. G. from importing into the United States any such products from Germany.

124. Following the execution of the Hague Memorandum, I. G. transferred to Jasco the patents relating to Jasco processes for the British Empire, France, the United States, Spain, Sweden, Switzerland, Holland, Belgium, and the Latin American and other countries, and also transferred to defendants Young and Currie numerous patents relating both to the hydrocarbon and chemical fields.

125. In or about November 1939, defendant Standard notified companies engaged in the manufacture of tires and other rubber products that they had acquired complete control of the Buna patents. Standard and I. G. had devised a plan to make sure they would have complete domination in the production and sale of synthetic rubbers. The plan provided for the formation of a single corporation, at least 51 per cent of the stock of which was to be owned by Standard and the remainder by the leading tire manufacturers. Defendant Standard also was to receive thereunder a preferred right to supply all raw materials produced from petroleum and natural gas and required in the manufacture of synthetic rubbers. Each of the tire companies holding shares would be required to accept a license from the proposed company to manufacture for its own requirements, at a royalty rate of  $7\frac{1}{2}$  cents per pound, and to cross-license back to the proposed company all of its improvements in the manufacture of synthetic rubber. This program has not yet been put into effect. As a preliminary step, Standard offered to license the leading tire manufacturers under the Buna patents at a royalty rate of  $7\frac{1}{2}$  cents per pound, and with a further condition that they were obligated to cross license back to Development all of their United States patents during the term of the agreement. The agreement also provided for Development an exclusive transferable right to grant licenses under foreign patent rights of the licensees for the same period. The proposed licensees further limited licensees to manufacture only for their own needs and prevented sale by them in bulk, and required that they sell at least 25 per cent of their production, and all of their excess production, to Standard.

126. Standard's purpose in requiring such restrictions and such cross licensing was to assure for itself and I. G. continued dominance in the manufacture of synthetic rubber. Its purpose in requiring a royalty rate of  $7\frac{1}{2}$  cents per pound was to restrict rubber manufacturers to the manufacture of specialty rubbers and to prevent them from manufacturing rubber for tires. Because of vigorous objection by tire companies, Standard subsequently reduced the royalty rate, but still insisted upon the cross licensing of all present and future developments of the process and its utilization. Up to and including January 1, 1941, the United States Rubber Company and the Firestone Rubber Company had accepted such licenses, but the other tire manufacturers refused to do so because of the requirements for cross licensing and other stringent provisions.

127. Despite the fact that Standard has transferred samples of Butyl rubber and complete technical information regarding it to I. G. in March 1938, and at other times thereafter, Standard did not make available to any tire company any samples of Butyl rubber for testing purposes for tires and inner tubes until June 1940, at which time is transmitted samples to the Firestone Rubber Company and the United States Rubber Company, the two companies which have accepted licenses under the Buna patents.

128. Standard's scheme to achieve a monopoly in synthetic rubber was interrupted by the request of the United States Government that it enter into a pool with other rubber companies to license the Buna patents in connection with the defense program, and on or about December 19, 1941, Standard, Firestone, Goodrich, Goodyear, and the United States Rubber Company entered into a contract with the Rubber Reserve Company, a subsidiary of the Reconstruction Finance Corporation, under the terms of which all the parties agreed to pool their patents of the Buna type and issue licenses to any person at the request of the Rubber Reserve Company. Defendant Standard's Butyl patents were not included in such pool, and to date defendant Standard has not issued any license under such patents.

#### EFFECT OF COMBINATION AND CONSPIRACY

129. By carrying out the combination and conspiracy hereinbefore described, the defendants and the co-conspirator have: (a) directly, substantially, and unreasonably restrained interstate and foreign trade and commerce in the manufacture and sale of oil and chemical products throughout the world, including the United States; (b) refrained from competing with each other in the manufacture and sale of oil and chemical products throughout the world, including the United States; (c) employed their combined patents and processes and technical resources to prevent other oil refiners from manufacturing and selling oil products better and cheaper than those of I. G. in Germany and those of defendant Standard in the rest of the world, including the United States; (d) acquired control throughout the world of all principal patents and processes for the syn-

thetic manufacture of gasoline and other oil products, and have retarded the use of coal and natural gas for this purpose; (e) have acquired control of all patents and processes relating to pour point depressants and have eliminated competition by other oil and chemical companies in the manufacture and sale of such products; furthermore, defendants have transferred to I. G. the control of the manufacture and sale of all chemical products not closely related to the oil industry, have prevented third parties from competing with I. G. in the manufacture and sale of chemical products throughout the world, including the United States, and have refrained from competing in the manufacture and sale of chemical products with other chemical manufacturers bound to I. G. by cartel agreements; and I. G. has refrained from manufacturing or selling oil products in any of the markets of the world outside of Germany, including the United States, has transferred to defendant Standard the control of the manufacture and sale throughout the world outside of Germany, including the United States, of all chemical products closely related to the oil industry, and has transferred to defendant Standard all of its present and future processes, both patented and unpatented, relating to the oil industry for use throughout the world outside of Germany, including the United States, and, because of the contractual obligation of defendants to I. G. under the Four Party Agreement, has, prior to March 1940, secured technical information and processes concerning aviation gasoline, lubricating oils, and other petroleum products, developed by many American oil refiners, while I. G. has been restricted by the German Government from making available to Standard information which the German Government has considered of military importance.

#### JURISDICTION AND VENUE

130. The conspiracy herein set forth was formed in part and has been operated and carried out by defendants in part within the District of New Jersey. The sale of oil products in the State of New Jersey and the importation and exportation of oil products from or to foreign countries and from or to other States of the United States have been unreasonably and unlawfully restrained. Defendant Standard is a corporation organized and existing under the laws of the State of New Jersey, defendant Delaware has its principal refineries within the District of New Jersey, and defendants S. I. G. and Development transact business within said District. Many of the acts carrying out the illegal combination and conspiracy were performed by defendants in the District of New Jersey within the three years next preceding the filing of this information.

And so the United States of America, acting through its above named representatives, accuses and says: That the defendants throughout the period aforesaid at the places and in the manner aforesaid, unlawfully have engaged in a conspiracy is restraint of the aforesaid trade and commerce in oil and chemical products among several states and with foreign nations, contrary to the statute in such case made and provided, and against the peace and dignity of the United States.

EDWARD P. HODGES,  
HERBERT A. BERMAN,  
PATRICK A. GIBSON,  
ROBERT M. HUNTER,  
*Special Assistants to the Attorney General.*  
JOHN R. JACOBS, Jr.,  
WEBB G. ELLIS,  
*Special Attorneys.*

THURMAN ARNOLD,  
*Assistant Attorney General.*  
CHARLES M. PHILLIPS,  
*United States Attorney.*

EXHIBIT No. 442

SEPTEMBER 8, 1941.

Proposed Sale of Hungarian Producing Properties.

HON. HENRY A. WALLACE,  
*Chairman, Economic Defense Board,*  
*Washington, D. C.*

MY DEAR MR. WALLACE: I beg to refer to my letter of August 28th regarding the offer of I. G. Farbenindustrie to pay \$24,000,000 in gold for our properties

in Hungary. Owing to the importance of this matter to our company and because the offer may be withdrawn or rendered impossible of consummation in a short space of time, I am writing to inquire whether you can give us any advice on the status of this matter with the Economic Defense Board. If I can be of any assistance by coming to Washington, I shall, of course, be glad to do so.

Very truly yours,

[Signed] ORVILLE HARDEN.

cc to Jay Crane.

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EXHIBIT No. 443

AUGUST 19TH, 1941.

HON. HENRY A. WALLACE,

*Chairman, Economic Defense Board,*

*Washington, D. C.*

DEAR SIR: We have had an attractive offer from a large German company for the purchase of oil producing property which we own in Hungary. Application was made to the Treasury Department for a license to consummate the sale, and our request was denied. Since your Committee is concerned with international economic activities, transactions in foreign exchange and foreign-owned or foreign-controlled property as well as international investments, we are referring our problem to you with the knowledge and approval of the Treasury. We enclose a memorandum which explains the proposed transaction as well as copy of our application to the Treasury.

As you will appreciate, the sale of our Hungarian property for a large amount of cash would be most advantageous to our many American stockholders, whose interests we must protect. Furthermore, with German domination over Hungary, the property will be taken by the Nazis if and when needed, regardless of ownership. We would not consider under any circumstances suggesting anything which might be against the best interests of the United States, but since Germany will take the Hungarian property whenever she needs it, it seems to us that the United States is the gainer to the extent of whatever assets we may be able to realize now from the Germans for the property.

The question has been raised as to the origin of the gold. On this point we have been assured that the gold to be delivered to us in payment at Lisbon would be a part of the original gold reserves of the Reichsbank, would be drawn wholly from within Germany, and probably would be largely made up of old German coins. By such payment Germany would, of course, be reducing her total stocks of gold.

I, or some other member of our board, shall be glad to go to Washington to discuss this matter further, if you so desire, or to furnish any additional information which you may need.

Very truly yours,

Enclosures (2).

cc Jay Crane.

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EXHIBIT No. 444

MEMORANDUM

Several months ago the I. G. Farbenindustrie A. G., of Germany, inquired over the telephone whether we would be interested in selling our producing property in Hungary. This property which produced in 1940 1,935,000 barrels of oil, is owned by a Hungarian Corporation (MAORT) which is in turn 100% owned by the European Gas & Electric Company, an American corporation, subsidiary of Standard Oil Company (New Jersey) with a minority interest. After referring the matter to the State Department, we told I. G. that we would be willing to discuss the question with them, and they stated they would send a representative to New York for the purpose. Their representative, Dr. Fenthol proceeded to Rio de Janeiro but was unable to get a visa to visit the United States. Mr. Harden, Vice President of our company, went to Rio for the purpose of ascertaining what proposal would be made.

The last offer from the I. G. Farbenindustrie, which from our standpoint

is highly acceptable, was to buy all of the shares issued by MAORT and to pay us the following:

Gold, probably mostly German coin----- \$13,500,000

Delivery to be taken by us in Lisbon, Portugal; the gold to be purchased by I. G. from the Reichsbank, Berlin, and to come from within Germany.

Swedish Kronor, Swiss Francs and/or Central or South American Currencies----- 5,500,000

The Swedish and Swiss funds are held by large Swedish and Swiss banks. The Central and South American currencies will be on deposit in banks in several countries.

Promissory Note of I. G. Farbenindustrie----- 5,000,000

This promissory note will be payable in U. S. dollars with interest three months after the end of the war and will recite that due payment of the instrument will be guaranteed by collateral represented by the American holdings and assets of the I. G. Farbenindustrie.

\$24,000,000

It will be noted the foregoing represents a total of \$19,000,000, that we would realize promptly. We understand that the Treasury would not at the present time buy gold delivered in Portugal but we would endeavor to arrange for shipment of the gold to New York by steamer and if the sale of our Hungarian property were approved by the United States Government in principle, then we would expect to be successful in obtaining a navicert from the British Government covering the the consignment.

The offer outlined above was embodied in an application made by us to the Treasury Department under date of July 30th, copy of which is attached. On August 4th we received a reply from Mr. Foley, Acting Secretary of the Treasury, reading as follows:

"Reference is made to your letter of July 30th, 1941, with which you enclosed an application filed by the European Gas & Electric Company. This application has been assigned No. W-906.

You are advised that the application in question has received careful consideration, but it is found that approval of such application would not be in accordance with the policy of the Treasury Department in administering the Executive Order. Accordingly, application No. W-906 is hereby denied."

It is our view that on the basis of a satisfactory offer such as proposed, the sale of our Hungarian property would be desirable for the following reasons:

1. With German domination over Hungary the property would be taken by Germany if and when needed regardless of ownership;

2. If Germany needs the Hungarian oil, the fields will be exploited on the basis of producing the maximum quantity of oil over the shortest possible time, so that after a few years the fields would have relatively little value;

3. In the event of the war ending fairly soon the European countries would not be in position financially to permit of profits being taken out so that from the standpoint of the American stockholder it is difficult to visualize that any dollars would be realized from our Hungarian venture for a long time to come.

Our company would not consider under any circumstances suggesting anything which might be inimical to the interests of the United States. If, however, the premise is accepted that Germany will take the Hungarian oil if and when needed, then it seems to us that the United States is the gainer to the extent of whatever assets we may be able to realize now from the Germans for the property. This premise was accepted by Mr. Ray Atherton, Chief of the Division of European Affairs, Department of State, with whom the matter was first discussed several months ago.

August 19, 1941.

cc: Jay Crane.





EXHIBIT No. 446

[Copy]

No. 404

EMBASSY OF THE UNITED STATES OF AMERICA,  
*Berlin, November 4, 1938.*

Strictly confidential.

Subject: Chart Illustrating the Interlocking Interests in Germany in the Production of Synthetic Products Important in Time of War.

The Honorable The SECRETARY OF STATE,  
*Washington.*

SIR: I have the honor to enclose copies of a chart recently prepared under the direction of Mr. Frank A. Howard (President of the Standard Oil Development Company, 26 Broadway, New York City), which illustrates the interlocking interests in Germany in the production and importation of oil fuels, lubricants, synthetic fats, rubber, and fibers. Mr. Howard made this chart available to the Embassy on the understanding that it would be regarded as strictly confidential and only for the information of the Departments of State, War, and Navy. The Military and Naval Attachés have been given copies for the information of their respective departments.

It is believed that the chart will be found to be largely self-explanatory and to provide a convenient description of the control exercised over these industries in Germany. It will be seen that the principal non-German interests are the Standard Oil Company of New Jersey and the Royal Dutch Shell. As the chart shows, American interests are involved in the production of almost all of the synthetic products important in time of war. The only exception to this is synthetic fiber, over which the Standard Oil Company of New Jersey has no patent control. These patents are owned outright by the I. G. Farben A. G. The following observations offered by Mr. Howard on the present production situation of these synthetic materials may be of interest:

With reference to synthetic fats, the principal source of supply in Germany is now wax, which in turn is obtained by distillation of coal. Wax is also rapidly becoming the principal source of supply for lubricating oils. The domestic German production of synthetic lubricating oils is progressing very rapidly and a considerable increase should be observed in the next two years in respect of light motor fuel. The present progress would indicate that Germany should be entirely self-sufficient in light motor fuels by 1941. This estimate, of course, takes into account the domestic production of natural petroleum, benzol, and alcohol-menthol. The production of industrial fats is expected to increase rapidly in the next few years. It is hoped that the synthetic production of fats obtained from coal will eventually be increased to a level sufficient to cover all industrial requirements, thereby liberating animal fats for edible purposes.

Respectfully yours,

(Signed) HUGH R. WILSON.  
Hugh R. Wilson.

(Enclosure: 1. Chart, as above.)

EXHIBIT No. 447

JANUARY 17, 1939.  
CA 708.5

MEMORANDUM ON MEETING AT THE WAR DEPARTMENT TO DISCUSS SYNTHETIC RUBBER, JANUARY 12, 1939

In accordance with arrangements made by Mr. Howard, I made a call on January 12th at the offices of the Assistant Secretary of War in the Munitions Building, Washington, D. C., where I saw Colonel Rogers of the Planning Branch, Commodities Division. Others present were Colonel Hines of the Army and Navy Munitions Board, Commander King of the Navy Office and during Mr. Howard's call earlier in the week.

While the meeting got under way I had an opportunity to read a brief memorandum which Capt. Heiss had prepared on the conversation that took place during Mr. Howard's call earlier in the week.

The gentlemen seemed very appreciate of being informed on the Development Company's activities in the synthetic rubber field, but appeared somewhat uncertain as to how to proceed next since the normal functioning of this branch is in the direction of finished products rather than new developments. However, it was agreed that as a preliminary step the Chemical Warfare Service should be given an opportunity to examine the various grades of synthetic rubber and arrange for suitable articles to be made up by their regular equipment suppliers for test purposes. Because of the extremely confidential nature of this development, it was understood that all contacts were to be made through Colonel Rogers' office without any mention of the origin of the samples and the information accompanying them. Subject to Mr. Howard's approval, however, it was felt that a meeting should subsequently be arranged for us to present our data to the technical personnel of some branch of the Chemical Warfare Service, presumably the Edgewood Arsenal.

In the meantime, five-pound samples of Buna S, Buna N, and Buna X (our copolymer) were left with them, together with compounding directions for the last two, which are the only ones on which we have such information available. As a further precaution we were asked to drop the word Buna and simply use the letter designation. It was agreed that we would rewrite our compounding directions accordingly and submit the revised edition unsigned and without the use of letter-head.

Although some of the outstanding properties of these materials were stressed in the course of our conversation, the gentlemen were not particularly anxious to discuss technical questions which they did not feel came within their field. However, they said that they would like to have a story on the properties of the three products written in not too technical language, and this was promised them.

The group present in Colonel Rogers' office was particularly interested in the application of Buna in the manufacture of tires. It was their understanding that the Development Company expected a rather large supply of Buna S to reach this country in another two months or so for extensive tests to be carried out by the American rubber industry and that, if the results of these tests did bear out the German claims, manufacturing of Buna S would in all likelihood be undertaken in this country. They hoped to be in from the beginning on the test program to be undertaken on the material imported from Germany. In this connection they seemed somewhat alarmed by the reports on the alleged failure of Buna tires on heavy equipment during Hitler's march into Austria. According to information which had reached the War Department, there had been no indication of trouble until the advancing army was forced to proceed along secondary roads. However, they had gathered from Mr. Howard that the change from Buna N to Buna S for production of tires had been made since that time. I confirmed this as my own understanding and added that, while I knew nothing about the state of perfection of the German rubber industry, it was inconceivable to me that our American tire manufacturers would carry a new development of this kind all the way through to commercial production without positive assurance of satisfactory performance under all sorts of operating conditions.

They were very much taken by our copolymer from the appearance of the samples shown them and the description of some of its more interesting properties. The fact that this was an American development undoubtedly had a special appeal to them, but the five pound sample of Baubury'd and partly compounded copolymer also seemed like the most attractive of the three products from the standpoint of general appearance.

They had understood from their conversation with Mr. Howard that the manufacturing cost of Buna S might be somewhat high for direct competition with natural rubber at its present price level so that some protective tariff might be required to carry the development through. This seemed of some concern to them and they were anxious to find out where our copolymer stood in this respect. I, of course, was not prepared to give any figures on this but told them that we felt the ultimate manufacturing cost of copolymer would be quite low, that we had sufficient faith in the product to feel that its unique properties would carry it through to commercial production, and that although its initial use might perhaps be for specialty purposes where a somewhat higher price could be tolerated, it was to be expected that the manufacturing cost would come down with increased volume production and increased experience in the manufacture of the product. They agreed that there had been many

similar illustrations in the development of new chemical products which by this time are on a firm competitive basis and that there was no reason why the synthetic rubbers should be an exception in this respect. On further questioning about Buna S, I had to admit that I was not sufficiently familiar with the data to venture any opinion as to what extent the increased cost might be outweighed by prolonged tire life and generally improved performance, and told them that Mr. Howard undoubtedly had given them what information we now have on this point and that nothing further could be said until we had seen the results of the proposed tests to be carried out in cooperation with the rubber industry.

PER K. FROLICH,  
*Chemical Laboratories.*

PKF:ech  
Jan. 13, 1939  
cc to: Mr. F. H. Howard  
Mr. E. V. Murphree

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EXHIBIT No. 448

ARMY AND NAVY MUNITIONS BOARD,  
*Washington, D. C., January 26, 1939.*

Strictly Personal and Confidential.

DR. PER K. FROLICH,  
*Director, Chemical Laboratories,  
Standard Oil Development Co.,  
P. O. Box No. 243, Elizabeth, New Jersey.*

DEAR DR. FROLICH: The Army and Navy Munitions Board Commodity Committee on Rubber, in a meeting held yesterday, January 25, made recommendations to the Board that the samples of synthetic rubber which you left with the Board on January 12 be turned over to the Bureau of Construction and Repair of the Navy for such tests as they desire to conduct on this material. The Committee further recommended that efforts be made to obtain similar small lots of the three synthetic rubbers for tests which would be conducted by the Chemical Warfare Service of the Army. The Army and Navy Munitions Board has approved the recommendations of its Commodity Committee. It is contemplated that both the Navy and Chemical Warfare Service, if you can make sufficient material available for the latter mentioned Service, will process the samples which you left and will manufacture or have manufactured from them certain of the small rubber articles used by the two Services.

Both Services, which will conduct these tests, have been advised in detail as to the source of the samples and have been authorized to contact you directly in reference to any technical information, etc., which will be needed. They have been further advised as to the strictly confidential nature of this contract with the Standard Oil Development Company and fully understand that the identity of your Company is not to be disclosed to individuals outside of the War and Navy Departments.

In view of the fact that the material which you left with the Army and Navy Munitions Board is not sufficient for the tests contemplated by both the Bureau of Construction and Repair of the Navy and the Chemical Warfare Service of the Army, it is requested that if possible your Company furnish a duplicate supply of materials so that there will be sufficient for the Chemical Warfare Service to conduct tests which they contemplate.

The Army and Navy Munitions Board appreciates the information and assistance which you have given to date as well as your offer of assistance in the matter of synthetic rubber development in the future. Please be assured that in accordance with your request this matter will be held strictly confidential within the Army and Navy Departments.

Sincerely yours,

CHARLES HINES,  
*Lieutenant Colonel, Secretary, Army and Navy Munitions Board.*

## EXHIBIT No. 449

ARMY AND NAVY MUNITIONS BOARD,  
Washington, D. C., February 1, 1939.

Strictly Personal and Confidential.

DS. PER K. FROLICH,

*Director, Chemical Laboratories,  
Standard Oil Development Co., Elizabeth, New Jersey.*

DEAR DR. FROLICH: Your letter of January 30, 1939, stating that your organization can make additional samples of three synthetic rubbers available for tests by the Chemical Warfare Service and offering to deliver them in person, has been received.

Your offer of additional samples as well as your offer to deliver them personally is appreciated. It is believed that it would be advisable for you to contact the personnel both in the Chemical Warfare Service and the Bureau of Construction and Repair of the Navy who will be in charge of testing these materials at this time.

If you will advise the Army and Navy Munitions Board as to the date you expect to be in Washington, arrangements can be made for you to meet the personnel concerned with the tests. At that time methods for any further exchange of information may be decided upon.

The Army and Navy Munitions Board appreciates your continued cooperation in the matter of synthetic rubber and hopes that an additional trip to Washington in the near future will be convenient.

Sincerely yours,

CHARLES HINES,  
*Lieutenant Colonel, Secretary, Army and Navy Munitions Board.*

## EXHIBIT No. 450

NAVY DEPARTMENT,  
BUREAU OF CONSTRUCTION AND REPAIR,  
Washington, D. C., March 13, 1939.

Refer to No. JJ/Rubber—(1) (RM).  
Confidential.

DR. PER K. FROLICH,

*Director, Chemical Laboratories,  
P. O. Box 243, Elizabeth, New Jersey.*

SIR: This will acknowledge the receipt of your letter of February 27, 1939, containing as enclosure directions for compounding "N" and "X" rubbers. Receipt is also acknowledged of ten additional pounds of synthetic rubber, Product "N," received under separate cover.

Tests to determine the physical and chemical properties, the milling, vulcanizing and aging characteristics of these various synthetic rubbers have been authorized at one of the Yards, in accordance with the plan agreed upon at the meeting on February 9, 1939, between yourself and Bureau personnel.

Since the amount of information available on Type "S" rubber is very limited, compounding formulae will have to be developed on a trial and error basis. It is hoped that the paper to be presented by Dr. Albert Koch of the I. G. Farben Industrie, at the meeting of the Rubber Division of the American Chemical Society on April 4, 1939, will shed some light on the processing qualities of this material. If, in the meantime, you should obtain any information in regard to the compounding and processing of Type "S" rubber, the Bureau will appreciate obtaining such information. It is noted that you have been able to effect a reduction in the amount of accelerator required for vulcanization.

Respectfully yours,

J. M. KIERNAN,  
*Lt. Comdr. (CC), U. S. N.*

## EXHIBIT No. 451

WAR DEPARTMENT,  
OFFICE CHIEF CHEMICAL WARFARE SERVICE,  
Washington, D. C., April 22, 1939.

Dr. PER K. FROLICH,  
Box 243, Elizabeth, N. J.

DEAR PER: Your telegram from Asheville, North Carolina, arrived yesterday in regard to Product X and the like.

We made arrangements to have all of the material you sent made up into gas mask face blanks with the idea of testing the possibility of molding these blanks from your product as well as to test the finished product itself.

The fact that some of the compounds contain accelerators that are not on the acceptable list is of no great importance at this time as the accelerators can be changed when and if an adequate supply of the material is available and the molding characteristics of the material itself are known.

I believe we have enough Product X at the present time to carry out the program that we have established and it will not be necessary to furnish any more of your material for a while, at least. The gas mask face pieces should be molded from this material within the course of the next two weeks and then we will be in a better position to say what may be done in the future.

Very truly yours,

M. E. BARKER,  
Major, C. W. S.

## EXHIBIT No. 452

NAVY DEPARTMENT,  
BUREAU OF CONSTRUCTION AND REPAIR,  
Washington, D. C., November 29, 1939.

- Encl. (a) Spec'n 27M13 (INT).  
(b) 33L4 (INT).  
(c) Sample of Rubber Matting.  
(d) Test Procedure.

Refer to No. JJ/Rubber-(1) (SS).  
Restricted.

SIR: This will acknowledge the receipt of your letter of November 15, 1939, and is in further reference to the visit of a Bureau representative to your laboratories on November 16, 1939.

There are enclosed, herewith, for your information a copy each of Bureau Construction and Repair Specifications 27M13 (INT) and 33L4 (INT) and a copy of Navy Department Procedure outlining the general conditions under which all tests are conducted. The tests on Butyl rubber would fall into Classification "W", page 3, and priority "A" on page 5, of the enclosed procedure.

In order to determine the scope of serviceability of Butyl rubber for Naval purposes it is believed desirable to test its suitability for the following:

- (a) Wire insulation.  
(b) Rubber lining.  
(c) Rubber deck matting.  
(d) Soft Rubber low modulus gaskets.

For the purpose of conducting these tests it is suggested that you forward, free of transportation or other cost to the government, the following material:

To the Commandant, Navy Yard, New York, N. Y.

## FOR WIRE INSULATION

- (a) *For electrical tests.*—500 feet of insulated conductor, made as follows:  
(1) The Copper conductor before insulating, shall consist of 7 strands of 0.020" diameter wire on the cross sectional equivalent. The copper to be tinned.  
(2) A cotton, tread separator.  
(3) A wall of butyl rubber insulation to a diameter of not less than 0.195 inch nor greater than 0.210 inch.  
(b) *For aging tests.*—At least 30 tensile test specimens or slabs from which such specimens can conveniently be cut.

## FOR RUBBER LINING

(a) Samples should be prepared and vulcanized in accordance with paragraph F-1 of enclosure (b) and forwarded to the Material Laboratory, Navy Yard, New York, to determine the tensile strength, ultimate elongation, aging, resistance to sulphuric acid, hardness, adhesion to steel, and shrinkage or expansion.

It should be understood that this is not an approval test for rubber lining of battery compartments of submarines, inasmuch as experience will first have to be obtained in other rubber lining installations, see paragraph H-4 of enclosure (b). The purpose of this test is to determine the general feasibility of Butyl rubber for lining in general and primarily to determine if proper adhesion to metal may be obtained.

To the Commandant, Navy Yard, Mare Island, California.

## FOR CEMENTED RUBBER DECK MATTING

(a) Twenty butyl rubber deck matting cleats 24" x 6" 0.200" in thickness.

The cleats should be essentially as the sample, enclosure (C). It is preferred to have a fabric backed matting although, for the purpose of this experiment, solid rubber will be acceptable.

(b) Sufficient cement for experimental installation of the cleats on board a destroyer by cold cementing to the steel deck.

## FOR SOFT RUBBER LOW MODULUS GASKET

(a) 25 lbs. of Butyl rubber as previously furnished.

Upon completion of these tests you will be informed by the Bureau as to the outcome. If the results are satisfactory consideration will be given to the modification of the above mentioned specifications which will make possible the use of this type of material for these purposes.

Respectfully,

E. C. FORSYTH,  
E. C. Forsyth.  
(By direction.)

Dr. PER K. FROLICH,  
*Director, Chemical Laboratories, Standard  
Oil Development Company,  
P. O. Box 243, Elizabeth, N. J.*

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"EXHIBIT No. 453," introduced on p. 4398, is on file with the committee

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"EXHIBIT No. 454," introduced on p. 4398, is on file with the committee

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EXHIBIT No. 455

NOVEMBER 8TH, 1939.

SECRETARY, ARMY & NAVY MUNITIONS BOARD,  
*Munitions Building, Washington, D. C.*

DEAR SIR: Referring to the discussion which Mr. F. A. Howard, Dr. P. K. Frolich, and the writer of the Standard Oil Development Company had with Col. Rogers, Col. Hines, Maj. Loukes, Maj. Barker, Capt. Heiss, and other representatives of your Board on October 19th, I am attaching for your information a very brief summary of some results obtained by rubber companies in testing the synthetic rubber product, Buna-S.

Very truly yours,

STANDARD OIL DEVELOPMENT COMPANY,  
M. B. HOPKINS.

MBH:GD.

CC—Dr. P. K. FROLICH.  
(Personal & Confidential.)

## MEMORANDUM—BUNA-S

The following is a brief summary of the tire tests made by rubber companies using Buna-S supplied by the I. G. Farbenindustrie as reported up to September 15th.

## B. F. GOODRICH COMPANY

Goodrich had difficulty in extruding the tread and therefore made tires by lamination on a drum. Three tires were made. Tests are being made of one tire in Florida but this has had only 3,300 miles service. At 1,700 miles the tire showed up 30% better than rubber, at 2,400 miles 16% better and at 3,300 miles 5.5% better. Goodrich has spent most of its time compounding the Buna-S and they apparently wish to perfect compounding so that the tread extrudes well before doing much with tires.

## FIRESTONE TIRE &amp; RUBBER COMPANY

Firestone used the compounding formula suggested by the I. G. and built four tires without preliminary laboratory work. They had no trouble with extrusion but did have some difficulty in making a fast splice of the ends of the tread in applying it to the carcass. The four tires were put on a car and run in comparison with another car using natural rubber tires in a test carried out in Texas. After 9,100 miles the two front Buna-S tires were 6% better than rubber and the two rear Buna-S tires were 15% better than rubber. The splice opened 1 mm. after 3,000 miles but did not open more.

## GENERAL TIRE &amp; RUBBER COMPANY

General built two tires using lamination rather than extrusion. One of these was tested by running 17,000 miles in California. The tire showed an advantage of 10% over natural rubber tires by measuring less in volume. The looks of the tire indicated more than 10% advantage.

## GOODYEAR TIRE &amp; RUBBER COMPANY

Goodyear has not done much with the sample furnished. They have made synthetic rubbers of Buna type in their own laboratories. They asked for and received only a 200-lb. sample of I. G. Buna-S. They reported trouble in handling and thought it no better than samples received two years ago. Made one tire and said it was only 80% as good as natural rubber.

## U. S. RUBBER PRODUCTS, INC.

U. S. has spent most of its time in laboratory experiments trying to check I. G.'s figures on elongation, abrasion, tensile strength, etc. At last report they were just ready to make a tire which they proposed to prepare by lamination.

MBG:GD.

November 8th, 1939.

## EXHIBIT No. 456

## MEMORANDUM ON RUBBER

NOVEMBER 17, 1939.

All interested parties with whom there have been previous contacts in connection with Buna Rubber, including the Munitions Board, have now been advised of the withdrawal of the I. G. from this project in the U. S., and have been asked to suggest to us what procedure we should adopt in exploiting the Buna processes.

The general situation may be summarized as follows:

There is an existing demand for Buna-N in quantities estimated to be between perhaps 2,000,000 and 10,000,000 lbs. per annum at the present time. No more importations from Germany can be relied upon, and the existing stock in the hands of the agency which has been importing this is only large enough to supply the most urgent requirements of customers for a few months. Failure of supplies would greatly inconvenience the customers. The Goodyear/Dow

group say they are prepared to turn out quantities of up to 10,000 lbs. per week in a pilot plant which they have been operating, production to begin almost immediately. Goodrich claim to have full laboratory data, and to be prepared to design a plant at once. Dupont are also prepared to begin immediate construction of a small plant. Rohm & Haas are likewise ready to erect a plant at once, although it is not clear how much technical information they really have. U. S. Rubber are willing to undertake to develop the process and to proceed with manufacture, but do not claim to have any experience at this moment. Firestone wishes to have supplies of the product but is not interested in manufacture.

The four tire companies have each had liberal samples of the Buna-S during the past year and have tested it in the laboratory and in tires to varying degrees. They all wish to proceed further with the testing of this material and all agree that it is a useful material, somewhat better than natural rubber for tire treads. No one is willing to admit however that Buna-S has yet shown itself to be good enough to justify a high premium over natural rubber, and none of the rubber companies desires to invest in commercial production of Buna-S at this time.

The Munitions Board wishes to secure the earliest possible development of synthetic rubber suitable for tires, is satisfied that Buna-S would be a suitable material, and will do whatever is possible to foster a development of Buna-S in the U. S. Up to this time, however, the Board has not been able to see how it could, under the law, use any Government funds for this purpose, although this question is still under consideration. Some changes in the appropriation laws might be made in the next session of Congress which would permit government funds to be used for the purchase of limited quantities of tires made from synthetic rubber at a price necessary to finance their manufacture. It is possible therefore that government funds in limited amounts may be forthcoming as early as the beginning of the next fiscal year (July 1940).

The following possibilities may be considered:

(1) Grant an exclusive license for the manufacture of Buna-N to one of the present applicants for such a license. This possibility we believe should be ruled out, because it would antagonize too many interests, and tend to promote infringement and litigation.

(2) To undertake manufacture of Buna-N ourselves, and license no one. We have no experience in this line and would therefore be slower in making a start than the Goodyear/Dow combination or duPont. If the process is to be monopolized, it would be more natural and would arouse less antagonism and resentment for us to monopolize it than to have it monopolized by one of the rubber companies. The difficulty with a duPont monopoly would be that the Buna-N product is to a very large extent competitive with Neoprene, which is duPont's own baby.

(3) To invite the four leading rubber companies to participate in a synthetic rubber company. Probably the same participation on some rational basis would have to be offered to the smaller rubber companies as well, so that we would have, in effect, a mutually owned enterprise of the rubber industry. This course would have the advantage of concentrating production in a single plant, with some resultant economy of investment and manufacture. The single plant could profitably be located at the source of butadiene to save freights on this material. A further advantage would be that there would have been thus created a suitable vehicle to use for indefinite expansion of the synthetic rubber business in the tire field, either along the line of Buna-S or along other lines. If this course were followed, it might still be possible to license duPont, Rohm & Haas, or others also; but it is doubtful whether there would be much room left for economical independent manufacture if the leading rubber companies were drawing their supplies from a mutually owned plant.

In discussing this problem with the Munitions Board we indicated to them the possibility that we might cooperate with the Government by attaching to any license granted for the manufacture of Buna-N a condition to the effect that the licensee would have to make a certain small proportion of Buna-S annually. This would insure the development of the Buna-S technique on a small scale, sufficient, however, to permit expansion at any time, and would provide the raw materials so that the tire makers could get the necessary experience in the handling of Buna-S for tire production. The Government might be able to finance this small Buna-S production by placing orders for small quantities of Buna-S tires annually at a price sufficient to cover the experimental expense involved in producing Buna-S and in producing tires from it.

The Munitions Board were asked to indicate whether, in their opinion, in view of the above proposals the interests of the Government would be better served by



asking the tire companies to join in a single plant to produce Buna-N commercially and small quantities of Buna-S experimentally, or whether it would be equally effective if we licensed several manufacturers. In their preliminary consideration of the matter the gentlemen of the Board had no definite convictions on this question.

An important factor in any final decision is the cost of butadiene. There are certain existing supplies of byproduct butadiene sufficient for the production of any requirements of Buna-N for the near future. Carbide and Carbon Chemical Co. is probably one of the best potential suppliers, Dow another, for immediate small requirements. Any hope of a large-scale Buna-S production would have to rest on the availability of butadiene in large quantities, however, without freight costs, and this would involve concentration of manufacture at one of the great oil refineries. We shall need some butadiene for our butyl rubber manufacture and have previously considered putting in a butadiene plant at Bayway for production of a quantity sufficient for both purposes in the first stages of commercial development. If we were to license the Buna-N process broadly, we should lose the advantage of controlling the initial butadiene outlet.

In licensing the Buna-N production (whether nonexclusively or exclusively) we probably could not get a royalty of more than 5 to 7½%, which might be roughly equivalent to 5¢ a pound at the present time. Taking an estimated market of 2,000,000 to 10,000,000 pounds per annum, this would mean a royalty revenue of \$100,000 to \$500,000 per annum. This royalty revenue might perhaps represent one-fourth of the profits from the manufacture of the product, not considering whatever advantage might also result from monopolizing the commercial butadiene outlet, and thus building up the lowest cost production of butadiene on a large scale.

Looked at from this angle, it would appear that the sales of Buna-N would have to be in the neighborhood of four times as great, as a result of a general licensing policy, in order to return to us the same profit we should have by engaging in the business of manufacture and sales ourselves. No allowance is made for the capital, because the interest cost to us of raising the amount of capital involved in this venture would be too small a percentage of the figures indicated above to be of any importance.

These last financial considerations are the ones which always make it difficult to reach a decision to license a new chemical development rather than exploit it directly.

In attempting to analyze the factors involved the butyl rubber development has been considered but does not seem to offer any conclusive argument as to any particular course. Buna-N is an oil-resistant rubber which would probably be competitive with butyl rubber only to a very minor extent. Our early manufacture of butyl rubber and its introduction to the rubber trade would be somewhat more convenient and cheaper if we were manufacturing Perbunan. The effect would be that we should have an existing small volume of profitable business on which to fasten the new development as it came along, and this would result in some savings and some smoothing of the road.

On the other hand, there would not be any particular prejudice to our butyl rubber development if we had already licensed the Buna-N development, either to a mutual company made up of the rubber interests, or to the various rubber manufacturers separately. In any case the Buna-N would continue to be manufactured and sold for its own special market, and the butyl rubber would require to be introduced as a new product.

It would probably not be lawful to license the Buna rubber on condition that the butadiene supplies be purchased from us. It might be possible for us to license on condition that each licensee cross-license us under his own improvements, but not require the licensee to pass such a cross-license through us to other licensees. If this proved possible, the effect would be that we should have the right (and would be the only company to have a right) to operate under all of the Buna-N basic and improvement patents of all manufacturers. This might possibly be of value to us but we could only capitalize it by actually engaging in the business ourselves. If we want to do this, it would be better to do it at the outset.

FRANK A. HOWARD.

FAH:MF.

## EXHIBIT No. 457

NOVEMBER 16, 1939.

Memorandum for: Colonels Rutherford, Hines, and all officers present in previous conference with Standard Oil Development Company re Buna rubber, the patent right for which this company has acquired:

Mr. Howard and Mr. Hopkins of the Standard Oil Development Company, conferred with me during the afternoon of November 15th. The following others were included:

Commander Shaffer, representing the Navy, and Major Franks, to explain the provisions of the Educational Orders program and to discuss possible application of the Act to the subject at hand.

## A. THE SITUATION

For technical details and record of previous conference see file "Rubber Synthetic, Commodities Division."

The Standard Oil Development Company has acquired rights to German Buna rubbers. Since the current European war no further details are available concerning the technique of manufacturing processes and fabrication technique. Further development by this company hinges on several factors—pertinent ones are:

(1) This Company cannot afford to develop Buna S on a large scale since there is little or no commercial market. Buna S is believed to be the best known rubber substitute for tire manufacture. The price of natural rubber in normal times deters extensive development of this substitute. On the other hand, there is a commercial market for Buna N (similar to Neoprene, Thiokol, Butyl X, and other high priced synthetics which have special uses—particularly in the oil resistance field.

(2) Buna S is (according to the Standard Oil Development Company) an accepted excellent substitute for crude rubber for tires were we denied crude rubber in an emergency.

(3) No company wants to pioneer the development of Buna S on such a large scale that would be necessary to make the United States self-sufficient in respect to rubber—peacetime competition with natural rubber prevents, and the resultant financial burden is too much.

(4) It is believed that the major rubber companies would gladly acquire the rights and licenses to Buna N for which there is a going market.

## B. THE PROPOSITION

The Standard Oil Development Company feels that if it licenses the production of Buna N to the major companies, it would benefit the national defense and that Company (Company benefits undisclosed, but obvious) to issue such licenses with the proviso that the licensed companies be required at the same time to develop Buna S. This would make no great or unusual demands on production, machinery or industrial facilities involved other than requirements for a small production and experimentation with a product which has no market potentialities until completely developed, or until so developed that production is at a price commensurate with that of crude rubber. Thus could a tire-rubber substitute be developed. The proposal involves the following companies: Goodyear; Goodrich, DuPont; U. S. Rubber; Firestone; and Rohman-Haas. It was indicated that these companies would probably be pleased to acquire the license for Buna N but would react unfavorably to the proviso requiring the development of Buna S. A Government subsidy, guarantee, or some sort of outlet for tires fabricated from Buna S would help carry the burden and ameliorate this restrictive contractual clause. If the proposition that governmental assistance were unobtainable or untenable, it was suggested, and requested, that the War Department express an opinion whether it would be preferable from a national defense point of view to:

(1) Issue Buna N licenses to the companies individually and require them to separately devote a specified amount of research and development to Buna S or,

(2) Issue Buna N licenses to such companies as would agree to establish a joint development and experimental facility for development of Buna S.

This request was made with the view of seeking a proper approach to the problem from a rubber substitute angle, and a commitment was desired whether or not the Government was interested in assisting financially. In the event the Government could find no way to assist, the proposition of issuing licenses could and still may be developed. Regardless of the outcome of this proposal for Governmental aid the Standard Oil Development Company would, nevertheless, want to consider the interests of national defense.

#### C. DISCUSSION

Mr. Howard and Dr. Hopkins were advised that—

- (1) The Navy had minor interests and could not assist (Comdr. Shaffer).
- (2) No funds were available, with the possible exception of—
  - a. Those for development of substitutes for strategic materials available to the branches and which were negligible (Mr. Howard believed that such funds were not sufficient to warrant consideration).
  - b. Educational Orders Appropriations (Major Franks explained the Act and it appeared that the probable application of such funds for this purpose was doubtful and remote).
  - c. Funds specifically appropriated by the next session of Congress for such a purpose (Mr. Howard showed minor interest in such future possibilities).

#### D. CONCLUSIONS

(1) It appears that the proposed development of Buna S would be in the interest of the national defense. The extent of the funds to be expended, if available or to be made available, should be made the subject of investigation by a board or other agency fully conversant with the situation and qualified from an economic and technical standpoint to determine the need for such development, and what may be behind this proposition other than the facts as here represented.

(2) That the Standard Oil Development Company appears seriously interested in the furtherance of this development by the issuance of licenses to the above-mentioned companies and desires to work with the military establishments in view of an ultimate solution to the rubber situation from the substitute angle.

(3) That the Standard Oil Development Company states that it will go ahead with its plans to issue licenses whether or not financial aid is forthcoming. However, it desires to be advised whether the War Department desires individual or collective development and experimental work with Buna S by the Companies licensed to use Buna N.

#### E. RECOMMENDATIONS

(1) That this matter be given consideration by The Assistant Secretary of War and an endeavor be made to assist in such an undertaking as proposed.

(2) That the Standard Oil Development Company be advised that in the meantime it should proceed with the proposed issuance of licenses and that it would appear to be more in the interest of all concerned to centralize efforts of the licensed companies to pool the research and development of Buna S.

(3) It is further recommended that a letter along the lines of the attached draft be forwarded by the Secretary of the Army and Navy Munitions Board to the Standard Oil Development Company.

JAMES C. BROWNE,  
Major, Q. M. C.

*Acting Chief, Commodities Division.*

JCB—wes

#### EXHIBIT No. 458

ARMY AND NAVY MUNITIONS BOARD,  
Washington, D. C., November 16, 1939.

Mr. F. A. HOWARD,  
President, Standard Oil Development Company,

26 Broadway, New York City, N. Y.

DEAR MR. HOWARD: Major Browne, with whom you and Dr. Hopkins conferred yesterday afternoon, has presented to me the matter which you have proposed.

At present there appears to be no funds or authority whereby assistance could be given by the War and Navy Departments, in connection with the development

of Buna S as proposed by you. However, I feel that should funds become available, their allotment for such a purpose would appear more readily applicable were this experimental work carried out through a centralized facility jointly conducted by the companies to whom Buna N licenses had been granted. It is believed that the greatest good could be accomplished by a concerted effort rather than by individual undertakings.

The interest of you and your company in your desire to serve the national defense is greatly appreciated and I shall be glad to advise you should ways and means be found to assist the proposed development of a suitable synthetic rubber for automotive tire use.

Very truly yours,

CHARLES HINES,  
Colonel, U. S. Army, Secretary.

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EXHIBIT No. 459

AUGUST 1, 1940.

Mr. P. W. LITCHFIELD,

*President, Goodyear Tire & Rubber Co., Akron, Ohio.*

DEAR MR. LITCHFIELD: From Mr. Francis' telegram of July 31st, it seems that his committee are proceeding on the assumption that the various companies interested in synthetic rubber will volunteer to undertake immediately the engineering of their own specific projects, up to a total capacity of not less than 100,000 tons per annum. Presumably it is expected that this engineering work will be undertaken by each interested company at its own expense and with only the general assurance of the Committee that it expects to adopt a program of some kind under which about 100,000 tons of synthetic rubber production will be assured.

There are three points in connection with this matter on which I would like to pass my comments to you in advance of the meeting:

(1) I am very skeptical about the utility, from a time-saving standpoint or any other, of any engineering plans made under these conditions. A large amount of preliminary engineering work is going on at the present time and will doubtless be continued in any case. I doubt whether much more that is effective can be accomplished until each interested company is able to see its way through to a definite project fitting its own views and needs.

(2) While some sort of a protection policy such as the waiver of the excise tax on tires containing a proportion of synthetic rubber, which we discussed, would doubtless stimulate commercial production of synthetic rubber under private capital, it is too much to hope that any such incentive or protection plan as this could result in the immediate construction of 100,000 tons' capacity. My own guess is that something between 20,000 and 40,000 tons would be the absolute maximum of capacity that all of the interested parties together would voluntarily install at the present time with their own capital.

If this is true, then the remaining 60,000 to 80,000 tons production capacity desired for immediate defense purposes would have to be financed by the Government. It was my impression after our talk last week that we both thought that if the Government is obliged to supply a large amount of capital to build synthetic-rubber plants for national defense purposes immediately, it would be very much better to have these plants built and owned by a company representing the entire rubber industry than to have private deals between the Government and individual companies under which the Government lent each company money to back its own particular project. If the projects of private companies are financed by the Government as an emergency measure, these companies will obtain a head start over all competition in this important synthetic-rubber field at Government expense—which seems unfair in the first place, and in the second place, destructive, because it would tend to prevent normal development of the privately financed competitive projects, which in the long run should take over the bulk of the market.

I know this same view is entertained by two of the other leading rubber companies, and I believe it is sound.

If these conclusions were accepted by the Committee at the Wednesday meeting, I believe an immediate start could be made on a real program for the solution of the problem. The program would be to turn over to a company representing the rubber industry itself the responsibility and the funds for erecting something like 60,000 or 80,000 tons of synthetic-rubber capacity, and simultaneously providing, by waiver of the excise tax or some equivalent plan, a protection for

synthetic rubber which would encourage private capital to proceed on its own account in competition with the Government-financed program.

(3) My third comment has to do with the relations of Goodyear and Standard. I think we made some real progress at our two discussions last Thursday. If the Government's program works out in the direction of our discussion (that is, with an industry-controlled company), Goodyear's immediate interest in Buna rubber as regards tires would be met through this channel—that is, Standard would license the industry company for tire manufacture. If, in addition, Goodyear wanted to manufacture its own requirements of Perbunan type of Buna rubber for specialty purposes, we would be prepared to make a separate license for that field for Goodyear's own use.

If, on the other hand, the Government program requires that Goodyear, to protect its own interest, would have to proceed with an independent large-scale Buna synthetic-rubber project for tires, we would have to make a license agreement covering both the tire field and the specialty field directly with Goodyear. This we are entirely willing to do, and we have no desire to place any limitations at all on the sale by Goodyear to others of Buna-type rubber for use in tires.

We are prepared to take care of the royalty problem on Buna rubber for use in tires by a straight percentage royalty, and we believe the same solution can be used for Goodyear's own consumption of Buna rubber for specialty purposes. In this case it would be our own selling price (since Goodyear does not sell to others for specialty purposes), which would be the basis of the royalty.

If these matters could be adjusted satisfactorily, there would remain only the matter of compensation to Goodyear for its existing improvement patents in the Buna field, under which we would be cross-licensed. This is a very difficult problem to meet because it involves us in the same question with other licensees. We have agreed with the U. S. Rubber Co. that if we compensate any licensee for this cross license we will also compensate them.

Would it be satisfactory to you to accept the same solution?

Very truly yours,

FRANK A. HOWARD.

FAH:MF.

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EXHIBIT No. 460

SEPTEMBER 10, 1940.

Mr. R. P. DINSMORE,

*Goodyear Tire & Rubber Company, Akron, Ohio.*

DEAR MR. DINSMORE: Dr. Sebrell and Mr. O'Brien had a very satisfactory talk with us today at which we learned for the first time that your people had not understood the basis of our proposed license contract the way we had intended it.

We are offering a license under all of our patent rights, present and future, in a defined field and are asking a cross license in that same field. Your people understood that this meant they would have to pay us royalty on any product they made which came within the defined field, whether or not we had any valid patent covering it. This was certainly not our intention. We do not expect any licensee to pay us royalty unless he requires a license under a claim of some patent which we own. Our understanding of the operation of agreements of this kind is that the licensee is free at all times to say whether any particular operation which he conducts is or is not under his license. If he says it is under his license, then of course he pays. If he says it is not under his license, our only recourse is to sue him either (a) for breach of contract or (b) for patent infringement.

We would not consider that our proposed contract with you would be breached by your declining to pay us royalties for the manufacture of any product which was not within the scope of any of our patent claims, whether or not this product came within the defined field.

We hope and believe that the above explanation clears up your objection to the form of the contract as regards the defined field.

The only other major point which was raised was in connection with your right to cancel the agreement at any time. We cannot agree to this, because such a contract would result in our sharing our monopoly with you at the present time when we have a preferred patent position and would leave you free by cancelling the contract to refuse to share your monopoly with us in this same field if you were fortunate enough to secure an improvement patent within the defined field but independent of any of our patent claims.

On the other hand we have offered you a right to disclaim at any time a license under any particular patent which we have in this field with the exception of three listed patents. While you cannot terminate the contract as a whole and thereby terminate our cross license, you can, if you will, disclaim at any time a license under all of the patents with the exception of the three named patents and you thereby become free to contest not only the scope but also the validity of the disclaimed patents, if you think you should not pay any royalty under them.

The only obligations that you cannot terminate at will therefore are: your simple license under the three named patents, our right to a license for ourselves only under your improvement patents in the defined field, and your agreement not to sue us or our licensees on certain compounding and use patents relating to products within the field. We have no right to terminate at all under any conditions, but must continue to stand ready throughout the life of the agreement to give you a license under any improvements we make in the defined field, without any additional royalties or any change in the conditions of the license.

I very much hope that when you have had an opportunity to review the contract in the light of the above explanations you will find that we have really done more already to meet your position and difficulties than you were asking us to do by the modifications Dr. Sebrell and Mr. O'Brien presented.

I also informed Dr. Sebrell and Mr. O'Brien that after further consideration of the royalty basis we had definitely decided that there should be a sliding royalty scale beginning at 5 percent for the first 100,000 tons manufactured under your license and all similar licensees, 4% for the second 100,000 tons and 3% for all excess production.

I know you will appreciate that one of our difficulties is that we must have the same contract with all licensees, and under these conditions it is not possible to be quite as elastic and yielding in matters of form with each licensee as would be natural and courteous if the contract were an entirely separate transaction unrelated to any others.

Very truly yours,

FRANK A. HOWARD.

FAH: MF  
cc: Messrs. Hopkins  
Fisher

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EXHIBIT No. 461

THE PROCTER & GAMBLE COMPANY,  
Cincinnati, Ohio, U. S. A., November 10, 1941.

MR. FRANK HOWARD,  
Standard Oil Development Co.,  
New York, N. Y.

DEAR MR. HOWARD: I was delighted to get a note from Will Clayton saying they had come to an understanding with you in regard to a royalty on the rubber matter. It may not mean so much in money but I think it does do the thing that I was terribly concerned with and that is to have them recognize your patents.

As I had a short talk with Mr. Farish about this matter, tell him I hope that this settlement seemed all right to him for as I said before, it was the principle of the thing that I think was important, and while this may not mean such a terrible amount of money now, it may be the means of you getting a sufficient amount in the ultimate for the work you have done in connection with rubber.

Yours sincerely,

R. R. DEUPREE.

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EXHIBIT No. 462

ALCOHOL MANUFACTURE ABROAD

The following conclusions have been reached on this subject as a result of studies and meetings in Europe during August and September:

ENGLAND

I. Anglo-American desires Jersey to keep control of the production of alcohol from oil in England as long as possible in view of the possibility that Anglo may

require very large supplies of cheap alcohol for its motor fuel [handwritten:] and do not desire us to be associated with Distillers Ltd. for the present. Our partner, National Distillers, is desirous of entering into the business in England—therefore, the venture if proceeded with should be by Standard Alcohol or a subsidiary.

II. It does not appear to be possible to manufacture economically in England except on a basis of production between five and ten million gallons per annum.

III. Proceeding on this basis requires (a) determination that the loading on the alcohol to make up for the increased cost of additional gasoline produced at Fawley in order to supply the byproduct gases for alcohol manufacture, will not be prohibitive; (b) adjustment of the  $8\frac{1}{2}\text{¢}$  per gallon subsidy now enjoyed by the fermentation process. Point (a) is being studied; point (b) is under discussion with the British Government authorities. [Handwritten:] R. W. G. informed Mr. Howard committee had approved additional capacity at Canapito which at the moment barred additional capacity at Fawley.

#### FRANCE

I. Conclusions are as follows: No basis exists at the present time for partnership with St. Gobain (Refinerie du Berre, 2nd largest chemical company in France) as suggested by them. We are writing, however, to consider any specific proposal that they may make for partnership on a specific project, and if we have any specific project of our own which would be mutually profitable to develop with them, we will advise them.

II. In view of the high price of isopropyl and ethyl alcohol in the French market, and the existence of a byproduct gas production of some size at Port Jerome, it appears feasible and desirable to proceed at once at Port Jerome with a half-million gallon per annum production of isopropyl alcohol.

III. The French Company is convinced that it is desirable for them to make a start in the production of chemical byproducts in France and have engaged a good man to guide and advise them in this field. Studies are under way to confirm the preliminary conclusions based on the first survey of conditions as above. The project in France would also be handled by Standard Alcohol or a subsidiary on a basis of purchase of the required gases and services from the Refinery.

#### ETHYL

Since the Ethyl-du Pont contract in the United States has not been finalized it was not possible to carry forward the discussions with Shell and Anglo-Iranian on the formation of a foreign Ethyl corporation in which they would be partners. To advance this project, however, the Japanese problem was taken up. The Shell and Socony people (with Standard-Vacuum) promised full cooperation in trying to work this out to the best advantage of everyone concerned. The German Ethyl Corporation (Ethyl has 50%) in which the I. G. is a partner, has undertaken to handle the Japanese problem through the I. G. representatives in Japan in cooperation with the oil companies there. The general idea is that a Japanese Ethyl company will be formed, the shares of which will be held by Japanese interests and the German Ethyl Corporation. The Japanese Government indicated willingness to discuss an agreement on this basis. [Handwritten:] (As there is likely to be no profit in venture but only some control over Japanese use and development, it was felt desirable to invest marks not dollars by this method.)

#### HYDROGENATION & RELATED SUBJECTS

*Germany.*—I. The last proposal of the Government in connection with the German lube plant is that the D. A. P. G. and Vacuum jointly be prepared to accept 49% of a company in which the I. G. would have 16% and Brabag (Brown Coal & I. G.) 35%, this company to manufacture base grades of lubricating oil from hydrogenated brown coal tar and from imported or indigenous paraffin wax. Assuming satisfactory contracts for the supply of any imported material such as wax and for the outlet of the base lubricating oils are made, D. A. P. G. are willing to accept settlement on the above basis although they will continue as long as possible to fight for control of the plant by 2 oil companies.

II. The question of the obligation of the German Government to respect the position of D. A. P. G. and Rheuania (Shell's German subsidiary) as importers of finished products and continue to give them the same quotas of such imports as they previously held despite their supply of fuel oil for the new Stettin hydro plant, was discussed at length. There seemed to be a wide divergence of opinion as to what this obligation would be and how it would be worked out especially as against Anglo-Iranian. It is believed that the discussion resulted in bringing the D. A. P. G. into line with the opinion held by the London Council on this matter. The D. A. P. G. has agreed to take whatever steps they think are feasible to try to further clarify this situation.

*France.*—The I. G. remained obdurate up to date in their refusal to accept the conditions which the French Government insists upon if they accept a hydrogenation license for France. The I. H. P. are continuing their efforts to find a common basis for agreement. The problem will not become acute until the French make an appropriation for a hydrogenation plant.

*Italy.*—Through the I. G., the Italian State controlled hydrogenation company, ANIC, requests cooperation of the oil companies in the refining of the hydrogenated products. In the opinion of I. H. P. this is desirable provided it can be made the basis of a satisfactory local agreement between the subsidiaries of Shell and Jersey in Italy, and ANIC. (Referred to local Italian subsidiaries for views.)

*Shell.*—The Shell Company are pushing for a modification of the hydrogenation agreement with them to release the hydrogenation operations of Shell and Jersey abroad from royalty payments to I. H. P. This question should be settled by the Board here after Mr. Carlisle's arrival about October 15 if Mr. Teagle will then be available.

#### I. G. CHEMICAL PROCESSES

I. The I. G. people in Germany who heretofore declined to permit the building of a commercial Vistanex plant in the United States have now agreed to let the matter be settled locally. We understand that their local people agree with us that such a plant should be built. I. G. have made a settlement with the competing group developing the process of manufacturing fatty acids from paraffin wax in Germany. Three large commercial plants are under construction by the combination in Germany. Without additional cost to us the rights of the competing group become available to us (Jasco) in the United States. The Procter & Gamble Company, who have a limited partnership with us in connection with this process, do not yet know of the German development but without such knowledge have agreed to accept the output of a small commercial plant (probably at Baton Rouge) in the United States.

II. The German synthetic-rubber project is moving along rapidly and there is a production of several hundred tons per month already. There are still difficulties in controlling quality of product as well as in operations, however. With respect to the United States it has been agreed that (a) we shall be informed of all samples heretofore supplied to rubber companies in the United States and as to the tests thereon by the rubber companies; (b) Advance Solvents, one of I. G.'s marketing connections in the United States which is used by Jasco also, will be given sufficient quantities of all the commercial grades to test out the American market; (c) when and if products are developed in the United States on a profitable basis, I. G. will supply outlets by exports even though this may produce some difficulties with the du Pont Company. It will be understood that prices in the neighborhood of 50¢ to \$1.00 per lb. will be required to make importation profitable. There is some possibility, however, that a market up to a million pounds per annum might be found at this price in special uses; (d) it should be understood that Jersey has no direct interest in the rubber produced synthetically in Germany since our rights are limited to products produced from oil or natural gas. We have an indirect interest since the same product could be produced by the same process from natural gas according to the arc method of producing acetylene in which Jasco has a large investment as yet unprofitable.

#### DUTCH PATENT—CATALYTIC CRACKING

Our Dutch patent lawyers have given us detailed advice in connection with the difficulties which our subsidiaries operating in the Dutch Colonies find themselves in, in attempting to defend against the Hondry Dutch patent for



catalytic cracking. It appears that we may be required to file annulment suits immediately in order to protect our interests in the Dutch East and Dutch West Indies [hand written:] in spite of our desire to delay as long as possible joining issue with Sun and Socony.

## FOREIGN DEVELOPMENT GROUP STAFF

The gentlemen associated with the London Council in charge of the general technical and patent matters of the Jersey interests abroad are strongly recommending that four (2 for Anglo, 2 for Inter. Asso.) additional engineers and chemists, one additional patent lawyer and the required clerical staff (2 or 3 clerks) for serving the above, be added to the London Office and the Esso European Laboratories in London. There is no doubt of the necessity of providing an increased number of technical men for these foreign operations. Apparently the only choice is to put these men in the local operating companies, or to attach them to the London organization. The local companies are slowly increasing their technical staffs under the pressure of necessity; it appears that the necessity will be less and the best interests of everyone served by the modest expansion of the central organization which has been suggested.

[Hand written:] (F. A. H. says this staff question not discussed with Mr. Reidemann.) Committee felt this staff question should be discussed when Messrs. Farish, Teagle, and Sadler available.

[Handwritten:] Discuss with Bd. when W. S. F., W. C. T., F. J. S. are available.

FAH:CFG

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"EXHIBIT No. 463" appears in full in the text on p. 4452

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## EXHIBIT 464

[Hand written:] Copy of this went to Sec., Army & Navy Munitions Board. See M. B. H. cover letter, 6/7/40.

M. B. HOPKINS,  
26 Broadway, New York, May 29th, 1940.

Mr. F. A. HOWARD,  
30 Rockefeller Plaza.

DEAR MR. HOWARD: Dr. Frolich and I had a discussion Monday of our synthetic rubber developments with Col. Charles Hines and some of his associates of the Army and Navy Munitions Board in Washington.

The status of our plans was outlined to them as follows:

(1) The developments are being carried forward in a normal business way without regard to any emergency conditions, pending advice from the Board that our plans should be modified in the national interest.

(2) The Perbunan plant at Baton Rouge, La., with a capacity of 10,000 pounds per day, is expected to be in production near the end of the present year. The production of larger quantities of this product will depend upon market conditions. Basic raw materials to make 40,000 pounds per day of Perbunan will be available at Baton Rouge near the middle of 1941. Experience in the operation of this plant should make it possible to build and operate a Buna-S plant when and if one is found advisable.

(3) The butyl rubber pilot plant has been in operation since last November and a number of difficulties have been overcome so that it is operating very nearly at designed capacity. Several tons of product meeting established standards have been accumulated for sample purposes. It is planned to continue the operation of this plant to perfect the process. The improvement and elimination of bottlenecks may result in a capacity of several hundred pounds per day. It is estimated that this pilot plant operation will continue until September, at which time data should be available which will permit the design of a commercial plant. Following normal procedure a commercial plant will not be operating for eighteen months from the time design is started. Commercial operation is not expected before the spring of 1942. In an emergency this program could be speeded up at a cost.

(4) The use of butyl rubber for tire purposes has not been tested. We do not have the equipment nor the technical personnel to find out if the material is suit-

able for tires. Samples of the product have not been submitted to the rubber industry nor has any announcement of the product been made to the rubber industry. It has been considered unwise to discriminate by offering supplies to any one rubber company before supplies of samples are available for the entire industry.

(5) Figures as to the cost of production of the Buna and Butyl rubbers cannot be furnished, but it can be stated that when the butyl rubber is produced on a large scale it will cost less than the Buna rubbers.

Col. Hines and his associates were obviously disappointed that these plans did not help in case rubber supplies are cut off in the near future. Col. Hines urged us to make arrangements as quickly as possible to have tires made out of butyl rubber. He suggested that it was in the national interest to know if this material could be used for tires and thought this interest should come ahead of our wish to offer the material to all rubber companies at the same time. He suggested that we could avoid discrimination by first selecting the company or companies which we consider best equipped to carry the tire work forward speedily and then drawing lots as to which company should be given the material and asked to cooperate. Capt. Heiss suggested as an alternative that we might ask the Rubber Association to designate a company.

Col. Hines said that as soon as information became available indicating that the butyl rubber was suitable for tire manufacture, he thought it quite probable that his Board would recommend that federal funds which are being made available to the President be used to advance the time when substantial quantities of butyl rubber can be produced.

Col. Hines and Capt. Heiss explained that the interest in rubber from a national defense standpoint was not limited to the requirements of the Army and Navy. These requirements are relatively insignificant. The Board recognizes, however, that a shortage of rubber would seriously handicap industrial mobilization. A large proportion of labor goes to work in automobiles and other rubber-tired vehicles.

Col. Hines will write to you to emphasize the importance of having the butyl rubber tested for tire purposes as quickly as possible. It is suggested that as soon as this letter is received, you call a meeting to determine what should be done.

Very truly yours,

M. B. HOPKINS.

MBH:GD

CC: Messrs. H. W. Fisher, P. K. Frolich, E. V. Murphree, R. P. Russell.

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EXHIBIT No. 465

ARMY AND NAVY MUNITIONS BOARD,  
Washington, D. C., May 27, 1940.

Mr. F. A. HOWARD,

*President, Standard Oil Development Company,  
30 Rockefeller Plaza, New York City.*

DEAR MR. HOWARD: Dr. Hopkins and Dr. Frolich visited the Army and Navy Munitions Board today and gave us a summary of your developments in the synthetic rubber field. It is interesting to note the extent to which the development of synthetic rubber has progressed during the past year, and as you know we realize fully its value as a national defense asset.

Due to the serious situation abroad the Board feels it is imperative that the development work on all types of synthetic rubber should be pushed, especially on your own type which you designate as "X." The Board is particularly anxious to ascertain at the earliest practicable time whether or not your "X" product is suitable for use in the production of automobile tires, both for the tread and the carcass. It is realized that you only have a small pilot plant in operation and perhaps your stock of "X" material is very limited; for that reason it may not be possible for you to have all the principal companies run tests to determine the suitability of your "X" product in the manufacture of tires. If this is the case, I would suggest that you select the company best fitted to give us the results in the shortest possible time, due to the gravity of the situation abroad. I realize that in the commercial field you would normally give your product to all reputable manufacturers and not discriminate in favor of any one firm in the development of any of your products.

If you do not desire to select a firm for such tests as noted above, then perhaps you could select one by lot or get in contact with the Rubber Manu-

facturers Association and have them select the firm which they believe best qualified to accomplish the job with the least practicable delay.

The information which I am requesting for the Board will be important as factual data in case any subsidy of the synthetic rubber industry is proposed or desired. It is believe that you have sufficient data in reference to Buna "N" and "S" to advise us on those types.

Thanking you for your interest in this matter and for coming to Washington from time to time to keep us informed as to your developments, I am

Sincerely yours,

CHARLES HINES,  
*Colonel, U. S. Army, Secretary.*

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EXHIBIT No. 466

JUNE 11, 1940.

Synthetic Rubber.

Mr. E. R. STETTINIUS, Jr.,

*Advisory Commission to Council for National Defense,  
2052 Federal Reserve Building, Washington, D. C.*

DEAR MR. STETTINIUS: We have already furnished to you, through Mr. A. L. Viles, the statistical data which you have requested on synthetic rubber production, which data we understood from Mr. Viles you were endeavoring to coordinate with all other available information for the purpose of determining the national position and policy on rubber. Apparently we have a rather exceptional measure of responsibility in this matter and for that reason we are supplementing the information given you through Mr. Viles with a more general statement of the synthetic rubber problem as it appears to us.

Our responsibility in the matter arises from the fact that we own the American rights for the German Buna synthetic rubber, that we have a second synthetic rubber of our own development. Butyl Rubber (which it seems possible may meet American conditions even better than the Buna rubber), and that some of our affiliated companies have the largest, lowest-cost supplies of raw material for the manufacture of these two rubbers and probably also for the recently announced Goodrich synthetic rubber which (according to our information) is itself a variant of the German Buna rubber.

Recognizing this responsibility, we have been in contact with the Munitions Board and with the leading units in the rubber industry for some months, seeking the advice of all concerned as to the best method to proceed. No solution of this problem satisfactory from a national standpoint appears to be possible, save one which involves the broadest possible cooperation along the lines of finance, technical development and patents, between the leading units of the rubber industry and ourselves. It might also prove to be necessary to add other interests in the oil or chemical industries to any such cooperative group in order to insure that the objective is attained.

The basic fact is that the synthetic rubber development, if permitted to take a normal commercial course, will proceed in slow stages, which cannot be expected to give us productive capacity in the United States of more than some insignificant fraction of our total rubber requirements within the next few years. If the objective is to obtain in the shortest possible time production capacity for a substantial proportion of our rubber requirements, the two indispensable conditions are (1) government financing and (2) cooperation along the broadest lines in the field of synthetic rubber manufacture and utilization between the competing units of the rubber industry and ourselves, with or without the inclusion of other interests.

We have made some tentative plans for a set-up which we believe might meet the national problem. Briefly, the principle involved is that the commercial interests concerned should organize a cooperative enterprise for the manufacture of, for example, twenty tons per day of synthetic rubbers of the various types now in demand by the industry for specialty uses and for technical and commercial testing in the tire market. This might involve an immediate capital requirement of the order of \$5,000,000, more or less. This same cooperative group should then undertake, by suitable arrangements with the government, the immediate erection, maintenance, and operation of one or more plants to produce something of the order of 300 to 700 tons of synthetic rubber per day to meet the requirements of the country in an emergency. The amount of capital required for this enterprise might be \$50,000,000 or thereabouts.

The construction of the emergency plants might require from 1½ to 2½ years, depending upon the necessities of the case, the economies desired, and the priorities accorded.

From the standpoint of the national economy, the cost of the synthetic rubber (excluding return on the capital, royalty, and profit), after the operations had become standardized, might be taken as roughly the same as the present cost of natural rubber—20¢ per lb. Whether it was 5 or 10¢ higher, or 5 or 10¢ lower might not be the critical consideration—and this is about the range of accuracy of the figures at this time.

More important than the cost of the synthetic rubber itself is the question of its exact technical merits when fabricated into tires, and unfortunately no fully satisfactory or conclusive data will be available on this point for many months to come. A tire costing the consumer \$10.00 may have in the tread 10 lbs. of rubber. An improvement in the quality of the rubber permitting this tire to deliver 30% more mileage (as claimed by the Germans for Buna synthetic rubber) would mean an increased economic value to the consumer of approximately \$3.00, or 30¢ a lb. additional for the 10 lbs. of rubber in the tread. Or, alternatively, it might permit the reduction of the tread weight from 10 lbs. to 7 lbs. For these reasons it will be understood that it is absolutely impossible to make a prediction as to the final economic status of synthetic rubber vs. natural rubber, beyond a relatively small specialty market in which the synthetic rubber will certainly displace natural rubber at a profitable price level. In view of this basic situation it is quite apparent that any plans for this industry must be based upon a highly elastic hypothesis on this point.

It is certain however that the technical cooperation between the producers of the synthetic rubber and the rubber manufacturers who compound and fabricate it into tires and other rubber articles, is necessary in order to arrive within the quickest time at the most favorable adjustment between all of the technical elements of quality and price involved in the composition of the synthetic rubber itself, in its compounding, and in the mechanical design of the tires and other articles in which it is employed.

The considerations which must be borne in mind in any program to proceed at once on a large scale with a synthetic rubber development in the U. S. as a part of the national defense program are, we believe, sufficiently well indicated by the foregoing. Our consideration of the possibility and form of some practical arrangement to meet the situation along the above lines has led us to the conclusion that some kind of enabling legislation is certainly desirable and probably absolutely necessary, if the objective is to be attained in the shortest time and at the minimum cost. Entirely aside from the financial questions, there is the difficulty which the antitrust laws present in attempting to formulate any plan for cooperation along financial, technical, and patent lines between competitive units. Within the oil industry itself it might be desirable, but it is probably not necessary, for competitive units to be involved, since (so far as we know) the Standard Oil Company (New Jersey) interests do not require the assistance of any other oil units in carrying forward this project. There might however be secondary considerations which would make it desirable and of benefit to the national economy to include other oil companies in the set-up. Certainly, it will be necessary to include the maximum possible representation from the rubber industry and from our discussions with the leading units of that industry we feel assured that more than fifty percent and perhaps virtually the whole of the industry, as represented by the large units, will wish to cooperate along the lines here suggested; and that each of the companies will be able to contribute real help to the early and economical attainment of the objective. In our opinion, enabling legislation, removing the real or arguable cloud thrown by the antitrust laws on any cooperative plans of this character, is therefore essential.

On the assumption that you desire us to determine all of the basic facts with the greatest possible speed, we have already established technical cooperation with two of the largest units in the rubber industry, and will seek to expand this cooperation. We are also endeavoring to prepare a definite plan along the lines here indicated as necessary. If this program is to be realized, however, the enabling legislation appears to be a *sine qua non*, and in view of this situation we are bringing the entire matter to your attention at this moment, and without waiting for the completion of a concrete plan.

Very truly yours,

FRANK A. HOWARD.

FAH:MF

## EXHIBIT No. 467

THE ADVISORY COMMISSION TO THE COUNCIL OF NATIONAL DEFENSE,  
Washington, D. C., June 12, 1940.

Mr. FRANK A. HOWARD,  
President, Standard Oil Development Company,  
30 Rockefeller Plaza, New York.

DEAR MR. HOWARD: Thank you for the informative analysis of the synthetic rubber situation contained in your letter of June 11, 1940. Your public spirited attitude is greatly appreciated.

Within a short time I shall ask you and the other principal producers whether you are willing to come down here and help us draw up a sound plan for the development of synthetics in connection with the defense program.

Sincerely yours,

E. R. STETTINIUS, Jr.  
E. R. Stettinius, Jr.

## EXHIBIT No. 468

AUGUST 8, 1940.

Mr. F. A. HOWARD,  
30 Rockefeller Plaza.

DEAR MR. HOWARD: Confirming my telephone advice this morning:

The discussion of the plan as outlined by Mr. Litchfield continued. Without going further into the question of pooling the activities of the industry, Mr. Francis asked for an expression of choice between the following five plans:

1. Government plants owned and operated by the Government.
2. Government plants owned and leased to private industry.
3. Government contract to purchase for five-year period on competitive basis (with provision of Government capital).
4. Private operation of plants with R. F. C. finance.
5. Educational orders.

In all cases, it was to be assumed that the Government would provide an incentive. Each company represented at the meeting was asked to express its first, second, and third choice. The result of the voting was as follows:

Plan	1st Choice	2d Choice	3d Choice	Total Votes
1.....				None
2.....	1	3	2	6
3.....	6	6	1	13
4.....	4	5	2	11
5.....	2	0	2	4

There next followed a discussion of methods of providing subsidies. The Chairman mentioned a list of ideas which had been presented to the Committee among which were protective tariff, outright Government subsidy to producers, and import licensing plan. No specific mention was made of the excise rebate idea. The Chairman expressed the thought that the import licensing plan might be the best method and no one disagreed, but there was a discussion as to whether this import license plan should be voluntary or made compulsory by law. The Chairman defined the import license plan as a requirement that every rubber manufacturer "buy or produce for use X amount of synthetic rubber in order to import Y amount of natural rubber." There was some expression of doubt that a voluntary plan would work but it was agreed that the Rubber Association would be asked to develop the possibility of a voluntary arrangement through the Federal Rubber Reserve people before the Committee decided as to whether it would recommend any import license plan.

The Chairman thought the conclusions arrived at might be summarized as follows:

1. To provide any substantial amount of synthetic rubber capacity, the Government must take some action.
2. A capacity of 100,000 tons per year is as good a figure as could be named.
3. Synthetic rubber is needed from a defense standpoint.

4. For defense purposes, companies present have indicated a willingness to engineer 108,000 tons capacity for plants to be financed substantially 100% by the Government.

5. Companies have expressed a willingness to engineer at their own expense that part of the engineering work outlined as being possible during the first two months in a memorandum furnished the group by the Committee.

6. It was assumed by all that a market is to be assured and the assurance will probably take the form of a Government license plan or by voluntary arrangement through the Federal Reserve people or some similar group.

7. The meeting brought out that capital requirements from the Government would be minimized by raw material suppliers not requiring financing.

The Chairman asked the wishes of the group regarding publicity in connection with the Government activities in connection with synthetic rubber. It was agreed that releases should be made by the Committee only. Mr. Francis thought that an announcement might be made to the effect that there was a meeting and that industry had agreed to engineer plants to produce 100,000 tons. At the same time an effort should be made to correct errors in earlier publicity of the synthetic-rubber problem by making it clear to the public that the rubber problem had not been fully solved, that plants could not be built overnight but that real progress is being made. The Chairman mentioned specifically that he thought the publicity accompanying the announcement of the Goodrich-Phillips tie-up was misleading. In adjourning the meeting, the Chairman advised that the next step would have to be taken by the Committee and those present could expect to hear from the Committee at an early (but unspecified) date. For the present the Committee asked only that it be furnished with the power requirements (electric) of each company for synthetic rubber and where it was proposed to obtain this power; that is, from existing supplies, new construction, or outside purchase. Mr. Murphree is going to get us this information.

Very truly yours,

MBH:GD

CC: Mr. E. V. Murphree

Please note last sentence which is in accordance with our conversation in the Dining Room.—MBH.

#### EXHIBIT No. 469

THE ADVISORY COMMISSION TO THE COUNCIL OF NATIONAL DEFENSE,  
Washington, D. C., August 28, 1940.

MR. FRANK A. HOWARD,

*President, Standard Oil Development Company,*

*30 Rockefeller Plaza, New York City.*

DEAR MR. HOWARD: I would like to take this opportunity of thanking you for having made the trip to Washington yesterday on such short notice.

In talking with Mr. Schram this morning, there appears no doubt that in these first direct contacts between him and the industry he secured much additional valuable information. This will be most helpful to him in assisting the Reconstruction Finance Corporation to crystallize its thoughts with respect to financing. It will probably take Mr. Schram several days to digest the situation and in the meanwhile we will keep in touch with him so that we can communicate with you promptly whenever he is ready to pursue the matter further.

Very truly yours,

CLARENCE FRANCIS.  
Clarence Francis.

#### EXHIBIT No. 470

OCTOBER 7, 1940.

CHAIRMAN,

SYNTHETIC RUBBER COMMITTEE,

*Advisory Council to Commission of National Defense,*

*Munitions Building, Washington, D. C.*

DEAR SIR: On August 23rd we advised Mr. Francis that we were proceeding with the general engineering studies, estimates and plans for the production of 30,000 tons per annum of synthetic rubber, and it was understood by all that

the project referred to was for the production of Butyl Rubber. This work has gone forward; general plans and estimates have been completed and in case of necessity could be amplified in the detail necessary for actual construction as contemplated by the preparatory program of the Committee adopted at the last general meeting of all the interested parties in Washington.

With the permission of the Committee we should, however, like to hold these plans for the 30,000 ton Butyl project in reserve for the time being and to present, in substitution therefor, two engineering studies covering the manufacture of butadiene. One of these will be furnished by the Humble Oil & Refining Co. for a plant at Baytown, Texas, and the other we are submitting herewith in behalf of the Standard Oil Co. of Louisiana covering a plant at Baton Rouge.

This substitution appears to be required by developments subsequent to the Washington meeting, at which the preparatory engineering program for the production of about 100,000 tons of synthetic rubber was agreed upon and responsibility for the execution of this preparatory program allocated to the various interested companies. The subsequent developments are:

(1) Our Licensees under the Buna patents, Firestone Tire & Rubber Co. and U. S. Rubber Co., have, with the concurrence of the Committee and of the Reconstruction Finance Corporation, undertaken the responsibility for the preparation of general plans and estimates for two Buna-S rubber projects in the amounts respectively of 20,000 and 25,000 tons per annum, on the condition and with the understanding on the part of all concerned that we would undertake responsibility for the necessary complementary plans and estimates for the manufacture of the butadiene required.

(2) With the addition of the Firestone and U. S. Rubber projects the total tonnage under design became 150,000 tons per annum. This is 50% in excess of the agreed preparatory program of about 100,000 tons, and the subsequent comments of the various members of the Committee and of the executives of the R. F. C. have indicated that the actual program adopted would probably be considerably less than 100,000 tons.

(3) While the Butyl Rubber at its present stage of development has been accepted by qualified rubber manufacturers as satisfactory for most miscellaneous rubber requirements, and as probably superior to natural rubber or any other synthetic product for certain special and essential uses such as the manufacture of gas masks and of electrical insulation, the development of its use in tire compounds is still in the experimental stage. It is our feeling that in view of the limited size of the present contemplated synthetic rubber manufacturing program, no projects should be included in it which have not demonstrated capacity to turn out rubber of fully established record of reliability and adaptability in the manufacture of tires.

The two butadiene projects above referred to are entirely independent projects, either of which may be proceeded with or dropped without prejudice to the other. The Baytown project submitted by Humble appears to us to have economic advantages over the Baton Rouge project, arising principally from the fact that the required supplies of butane are currently available at Baytown as an incident to other operations conducted there, which other operations possess a considerable degree of flexibility as regards the substitution of other raw materials for butane diverted to the butadiene plant.

To meet the situation at Baton Rouge, where no adequate supplies of butane are currently available, it appeared to us that the course best suited to the manufacture of butadiene as an emergency project of indefinite (but probably short) life, is the supply of butane by tank car. The necessary cars for butane supply from Baytown (which would be a potential source of supply fairly representative of other sources of supply as regards car requirements) have been included in the investment costs, and the freight on this butane included in the operating cost. If the manufacture of butadiene were regarded as a permanent commercial business, it is possible that permanent arrangements could be made for a source of supply of butane at Baton Rouge on a basis which might make the investment and manufacturing costs of butadiene at Baton Rouge substantially the same as those at Baytown.

If the Government program for the manufacture of synthetic rubber is so limited in size as to result in the allocation of a total of approximately 20,000 tons capacity to the Firestone and U. S. Rubber companies, it would appear on the face of the figures that the most advantageous course would be to supply the requirements of both companies from a single plant of approximately 20,000 tons at Baytown, Texas.

For the manufacture of Buna-S rubber the required basic raw material in addition to butadiene is styrene. While we hold licenses under the patents of the I. G. Farbenindustrie, A. G. for the manufacture of styrene for use in synthetic rubber, and would be prepared to produce styrene by this process, which the I. G. are using and which they believe to be the most highly developed and economical process, we have not as yet undertaken any responsibility in connection with styrene manufacture as a part of the synthetic rubber program. Instead, we have, at the request of the Firestone Company, advised the Dow Chemical Co. that they would be expected to present to the Committee plans for the manufacture of the necessary styrene for the 20,000 tons of Buna-S rubber covered by the Firestone project, while the U. S. Rubber Co. has itself undertaken direct responsibility for arranging for the supply of styrene for its own requirements.

Your attention is drawn to the fact that our estimates of plant investment and operating cost are based upon the assumption that this is an emergency defense project in which speed and certainty of operation, rather than minimum cost, are the criteria to be met. The design has therefore been based to the maximum extent on adaptation of existing commercial plant designs and methods and to the minimum extent on unproven equipment and methods based only on laboratory and pilot plant data.

If time were available we believe we should certainly be able to employ as a basis of design important improvements now under development, with resultant economies in investment and operating cost.

Very truly yours,

FRANK A. HOWARD.

FAH:MF

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EXHIBIT No. 471

HUMBLE OIL & REFINING COMPANY,  
*Houston, Texas, October 7, 1940.*

MR. JESSE H. JONES,  
*Washington, D. C.*

DEAR MR. JONES: This is written in response to your request that I advise you of the conditions under which the Humble Oil and Refining Company might participate in the program of the National Defense Commission and the Reconstruction Finance Corporation for supplying synthetic rubber or raw material for use in its manufacture.

Our Manufacturing and Technical Staffs have been studying processes and methods for the manufacture of these products in collaboration with the Standard Oil Development Company for several months. Intensive engineering studies have been carried out in designing and estimating costs for manufacturing Butyl rubber and also butadiene under patents owned by the Standard Oil Development Company. When the subject was first discussed with you, it appeared that we might wish to construct a plant at Baytown for the manufacture of Butyl rubber. While Butyl rubber has been accepted as satisfactory for most miscellaneous rubber requirements and appears to be superior to natural rubber or any other synthetic product for numerous essential uses, its use in tire compounds is still in the experimental stage. Therefore, as stated to you in our last telephone conversation, we feel that in view of the limited size of the present contemplated synthetic rubber manufacturing program we should not now undertake the construction of a plant to make Butyl rubber.

Standard Oil Development Company has licensed Firestone Tire and Rubber Company and U. S. Rubber Company for the manufacture of Buna-S rubber in amounts respectively of 20,000 and 25,000 tons per annum with the understanding that it would arrange for furnishing the plans and estimates necessary for the manufacture of the butadiene required by these plants. Having in mind that we might furnish butadiene required for one or both of these products, we have made as thorough a study, as limited time would permit, of the problems incident to the design and construction of plant and appliances suitable for manufacturing butadiene in amounts sufficient to supply either of these plants. The attached folio describes our work on this project and includes diagrammatic flow sheet, estimates of construction and operating costs, and other related data. In addition, it describes in general terms the source of supply of butane, which is the raw material used in the manufacture of butadiene.



The Humble Company is especially qualified to participate in such a program. It occupies an exceptionally fortunate position in regard to supplies of raw material and has available competent technical and operating staffs, experienced in developing and carrying to a successful conclusion operations of this kind. The Humble Company desires fully to cooperate with the Government and its agencies in the development of an adequate Defense Program and would be glad to discuss with you and others interested the basis on which we might participate if it is decided to go forward under Governmental sponsorship and support.

Very truly yours,

H. C. WIESS, *President.*

HCW:CP

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EXHIBIT No. 472

THE ADVISORY COMMISSION TO THE COUNCIL OF NATIONAL DEFENSE,  
Washington, D. C. October 9, 1949.

MR. FRANK A. HOWARD,  
*President, Standard Oil Development Company,  
26 Broadway, New York City.*

DEAR MR. HOWARD: The Synthetic Rubber Committee of the Defense Commission has studied the various problems involved in the production of synthetic rubber, has pointed out the need for the immediate construction of facilities, and has made its recommendations that this be done. The most important question now is that of finance which does not fall primarily within the province of the Committee. It has been decided that in the future the Reconstruction Finance Corporation will assume the responsibility for all arrangements relating to the construction of synthetic rubber plants in cases where government financing might be desired. Mr. Emil Schram, President of the Reconstruction Finance Corporation, will be in direct charge.

We are turning over to Mr. Schram the plans which we have already received. I suggest that you submit directly to him any further plans or suggestions that you may have. I know that he will be glad to discuss any pertinent matters with you and to answer any questions that you may care to ask.

May I take this opportunity to thank you, on behalf of the Synthetic Rubber Committee, for the splendid cooperation which we have received from you and your associates.

Sincerely yours,

W. L. BATT, *Deputy Commissioner.*

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EXHIBIT No. 473

PLANTS FOR THE PRODUCTION OF SYNTHETIC RUBBER

The R. F. C. will entertain and give sympathetic consideration to proposals for the construction of plants having an aggregate annual capacity for the production of 40,000 long tons of synthetic rubber for use in the manufacture of tires and tubes on the following basis:

(1) Any company or group of companies which desires to make a proposal should make same on the basis of agreeing to produce, sell, and deliver synthetic rubber of specified quality and composition, in units of 10,000 long tons capacity per year for a five-year term, beginning not later than July 1, 1942, at a price of 10 cents per pound. Such rubber shall not be inferior to a large sample (500 to 1,000 pounds) which sample shall be made available at such places and in such amounts as shall be required by the R. F. C.

(2) Each company or group of companies, if requested by the R. F. C., shall repurchase from the R. F. C. the quantity of synthetic rubber sold under the provisions of (1) above and consume it in current production of tires and tubes, agreeing to pay for such synthetic rubber a price which may fluctuate with, but be not lower than, the current market price of first quality natural rubber delivered in New York. The R. F. C. reserves the right on ninety (90) days' notice to retain for sale to others for use in the production of tires and tubes at prices not lower than the above-mentioned bid price, or for use by government agencies, one-

half ( $\frac{1}{2}$ ) or less of the product of the plant. The producing company shall, however, have the right to repurchase 50% of the synthetic rubber it produces.

(3) The R. F. C. will advance to each producing company or companies on account of its purchase obligation a sum not to exceed Six Million Two Hundred Fifty Thousand Dollars (\$6,250,000) at a rate so that at no time the amount advanced exceeds 75% of the total cost of the new plants and equipment purchased or erected for the production of synthetic rubber. New plants for the production of raw materials may be included in this proposal. The funds advanced will be returned to the R. F. C. either in cash or in the form of a credit at the rate of  $6\frac{1}{4}$  cents per pound if the entire \$6,250,000 is advanced or at such lesser rate in ratio to  $6\frac{1}{4}$  cents that the amount advanced bears to \$6,250,000, on all synthetic rubber delivered under this contract or produced by the plant during the first five years of its effective operation. The credit or cash payment to be made hereunder shall continue for the entire five-year period although the entire amount advanced by the R. F. C. for the construction of the plant and equipment has been repaid.

(4) The R. F. C. shall have the right to cancel the purchase contract at any time after the first year of operation of the plant without further payment or liability, but it is still to receive payment of  $6\frac{1}{4}$  cents per pound (or such smaller portion as above calculated in the event of smaller investment) for any rubber produced in the plant during the five-year period.

(5) The R. F. C. may cancel the agreement to advance funds for the construction of the plant and equipment at any time on payment to the producing company of its actual cost and liability incurred, to the date of cancellation, less the actual value of the plant and equipment.

(6) The producing company shall agree to repurchase from the R. F. C. all synthetic rubber, referred to under (2) above, for use in the production of tires and tubes only, such production, however, not being restricted to the plant of the producing company.

Contracts will be awarded to responsible bidders primarily based on the difference between the price at which the product is to be sold to the R. F. C. and the price which the producing company agrees to pay for the product, the latter, of course, to be in relation to the price of the first quality natural rubber delivered in New York. Companies must also agree to hold harmless the R. F. C. and those to whom it may sell its product for any patent claims arising out of the production or use of synthetic rubber in tires and tubes.

Firm proposals on the above lines should be in the hands of the R. F. C. not later than January 15, 1941.

cc A. C. M., M. B. H., H. W. F., E. V. M.

Noted by R. P. R. 12/19/40.

EXHIBIT No. 474

FEBRUARY 27, 1941.

Mr. W. L. CLAYTON,

*Reconstruction Finance Corporation,  
12th Floor, Federal Loan Agency Building,  
Vermont Ave. and H St., NW., Washington, D. C.*

DEAR MR. CLAYTON: Referring to the memorandum on rubber, of which you handed me a copy yesterday, it seems to us that the following statistics on gasoline consumption might throw some light on what assumptions could safely be used as to possible reduction of rubber consumption in the United States of an emergency demanded it. For whatever value it may have to you I am therefore giving you a very hurried analysis by our statistical people, as follows:

For the year 1940 consumption of motor gasoline was about 24,000,000,000 gallons, of which we estimate that 5,400,000,000 gallons were consumed by trucks, leaving a balance of 18,600,000,000 as the total consumption of all passenger vehicles. The only authoritative break-down of this passenger-vehicle consumption which we have been able to find today has been the estimate of the U. S. Public Roads Bureau as quoted in "Automobile Facts and Figures" for 1940. This estimate is that 55.3% of the total mileage of passenger vehicles was for business purposes and 44.7% for social and recreational purposes. If we accept these figures, it would appear that of the total motor gasoline consumption, 34.6% represents the social and recreational consumption, and 65.4% represents consumption by trucks and passenger vehicles operating for business purposes.

I do not know whether it is entirely clear to you what our relation to the synthetic rubber business is. I will try to outline it briefly, as follows:

1. We became interested in the Buna synthetic-rubber development of the German Chemical Trust about ten years ago and made an agreement with them for a joint development of this process and joint ownership of all the patents involved, in the world outside of Germany. Our own particular responsibility in this program was to develop cheap methods of manufacture of the raw materials used in the production of synthetic rubber, with petroleum and natural gas as the starting point; whereas the primary responsibility of the Germans was to develop the technique of actual polymerization of the rubber.

2. The joint program referred to was proceeded with on a considerable scale and at great expense on both sides of the water. At the time of the outbreak of the war the status of the new industry was that it had already been established on a large commercial scale in Germany, using a raw-material manufacturing process which had been partly developed here; and the Germans and ourselves were having discussions with the four leading American rubber companies concerning the licensing of the process in the United States. The Perbunan rubber was being imported from Germany and sold in competition with Neoprene (the du Pont synthetic rubber product) here. It was generally conceded to be a superior product for most uses. The Buna-S (or tire rubber) had been imported in substantial amounts for test purposes, and the four leading rubber companies had all manufactured and tested a few tires.

3. Upon the outbreak of the war we revised our arrangements with the Germans and divided the world on a territorial basis—we took over the complete ownership of the synthetic-rubber processes and patent rights in the British and French empires and in the U. S., and the Germans took over the processes for the rest of the world.

4. In the meantime we had ourselves developed an entirely new type of synthetic rubber called "Butyl Rubber," which was simpler and easier to manufacture, and of lower cost than Buna Rubber. It was not, however, an oil-resistant rubber like Perbunan and therefore not suitable as a substitute for Perbunan and Neoprene in that field; and on the other hand, while it appeared to be useful as a tire rubber, it obviously needed a considerable amount of development work to bring it up to the quality of natural rubber or Buna-S for tire purposes.

5. Even before the outbreak of the war we were in close touch with the Army and Navy Munitions Board on the question of the nation's rubber supply in time of emergency. We have recognized the national interest in this matter from the beginning and have shaped our plans accordingly. We never at any time contemplated monopolizing the manufacture of synthetic rubber for tire purposes in the United States, even though our patents might permit this and our immediate commercial interests justify it. Our plan has been to license the Buna patents generally to the tire industry for the manufacture of Buna rubber for tire purposes, but originally we planned to maintain the Buna rubber specialty market as our own field, to be exploited by us in competition with the du Pont "Neoprene."

We have receded from this position, however, to the extent of offering to license the rubber manufacturers to manufacture Buna rubber for their own consumption for specialty purposes, but not to sell it to other rubber fabricators for such purposes. The exclusive manufacturing field which we hope to reserve for ourselves under our patent rights would therefore be the supply of Buna type rubbers to rubber manufacturers who are not making the product themselves, for use in rubber goods other than tires.

6. The butyl rubber we regard as still in an experimental stage, and we propose to carry on the first commercial manufacture and sale ourselves. We are, meanwhile, cooperating with various large companies in special fields to insure the quickest possible development. The Firestone and U. S. Rubber companies are experimenting with the product for tire and tube purposes. General Electric is experimenting with it for electrical purposes. The Acushnet Process Co. is experimenting for other special purposes including the manufacture of gas masks. (It is interesting to note here that butyl rubber is apparently the best possible rubber product for use in gas masks.) The United Carbon Co. is also experimenting with it for various purposes.

7. The program which the RFC now has under advisement embodied all of the constructive suggestions we were able to make at the time for the accomplishment of the ends wanted. Our own relation to that program was the following:

(a) We had reached agreements with Firestone and U. S. Rubber on the patent licenses and had also made separate arrangements to supply their butadiene requirements under this program.

(b) We had offered the same licenses to the Goodyear and Goodrich companies but were expecting them to obtain their butadiene from other suppliers.

If, after further consideration of the matter you find it possible to proceed along the general line for the modification of the RFC program discussed with Mr. Firestone and myself yesterday, there would be no new problems to settle which we could see. We would remain as suppliers of butadiene to Firestone and U. S. Rubber, but the reduced quantity of butadiene would be furnished on a simple contract basis and with no financing complication.

As owners of the patents we are ready to license all four proposed plants on the basis already accepted by Firestone and U. S. Rubber. The principal difference of opinion between ourselves and the Goodyear and Goodrich companies at this time in connection with these licenses is the apparent desire of Goodyear and Goodrich to insist upon a license which would permit them to manufacture Buna type rubbers not only for use in their own plants for specialty purposes but also for sale to other rubber manufacturers in competition with our production of Buna rubber for these specialty purposes in the plant which we are just now completing.

So far as the Government's own requirements or defense interest in this matter might be concerned, we would of course do whatever is constructive and necessary. If this point has any pertinence in connection with your present problem we are of course at your service to discuss it.

We have faith in the ultimate development of a large synthetic rubber industry in the U. S. Rubber is the largest single item of import into this country. Its production and price are now completely controlled by a single foreign government and the only change in this situation which seems likely to occur is that that government may eventually surrender its control, to, or share it with, other foreign governments. In any case, the U. S. will remain in an economic and military sense dependent upon foreign powers for this foundation stone of its industrial life. Of all possible ways for accomplishing our independence, the production of synthetic rubber from oil and natural gas as raw material seems to us to be the most promising, technically and economically, and the most satisfactory to the national interest.

We have believed that if the defense requirements of this country justified steps to accelerate the natural development of the synthetic rubber industry, the cost of this defense measure would be compensated by hastening the establishment of a new and permanent basic industry in the United States, putting an ever decreasing limit on the price of natural rubber, reducing the outflow of foreign exchange in a post-war world in which we may need every bargaining point we have, and permanently assuring our military requirements of this indispensable product.

We believe, and have acted and invested on the belief, that the synthetic rubber industry is in the long run economically sound, regardless of governmental assistance. We believe that within the next two years it may reach a total volume for all varieties of synthetic rubber of something like 35,000 tons per annum, which will probably be sold at prices in the range of about 35 to 75¢ per pound. This rubber will all be consumed in specialty markets, including a certain amount of premium-priced tire and tube products. From this point on, the industry ought to grow slowly, and in the natural order of events it may be five to ten years before it becomes a really important element in the national supply picture. We believe, and have indicated to the Senate Military Affairs Committee, before whom we were asked to testify on this question, that a sound government policy would be to accelerate this rate of growth by two measures: (1) an immediate program of defense construction intended primarily to protect against an immediate shortage and to disseminate knowledge and perfect processes, and (2) a commercial incentive policy in the way of protection of the domestic product, either by the simple expedient of a tariff, or by some more scientific and positive method such as an import licensing plan which would enforce the consumption, at internally competitive prices, of an increasing percentage of synthetic or other domestic products.

Very truly yours,

FRANK A. HOWARD.

FAH:MF

cc: A. C. Minton, M. R. Hopkins, H. W. Fisher.

DEAR MR. MINTON: Mr. Farish has seen all of this but the last paragraph which I corrected in accordance with his suggestions.

F. A. H.

## EXHIBIT No. 475

MARCH 28, 1941.

3/28/41—DEAR MR. MINTON: The Executive Committee approved this letter at luncheon today. F. A. H.

3/31/41—Copy sent R. R. Deupree, Office of Prod. Mgmt., Social Security Bldg., Washington, D. C.: "I enclose herewith copy of letter to Mr. W. L. Clayton confirming telephone advice which I gave him on Friday. F. A. Howard."

MR. W. L. CLAYTON,

*Federal Loan Agency, Washington, D. C.*

DEAR MR. CLAYTON: I have discussed with my associates your suggestion that we waive all patent royalties and infringement claims arising out of the manufacture, use, or sale at cost of small quantities (approximately 1,250 tons total) of synthetic tire rubber for experimental purposes under the one-year program which you are now endeavoring to work out with the tire manufacturers.

You know it is our conviction that the synthetic tire rubber industry is essential to the national defense, and an important element in the post-war economy of the country. You also know that for two years we have been cooperating with the Army and Navy Munitions Board, the Council of National Defense, and the Reconstruction Finance Corporation in the successive stages of evolution of the governmental program on synthetic rubber. We are therefore committed in advance to the support of your very modest program, and we are glad to evidence our support by agreeing to your suggestion.

We have already been in contact with the National Defense Commission concerning the supply of butadiene in connection with the program.

Please call upon us if you think of any other way in which we can be of service in advancing this matter.

Very truly yours,

FRANK A. HOWARD.

FAH: MF

cc: Messrs. Russell, Haslam, Hopkins, Fisher.

## EXHIBIT No. 476

APRIL 10, 1941.

MR. R. R. DEUPREE,

*Chief of the Materials from Agriculture and Forest Products Section,  
Office of Production Management, Social Security Building,  
Washington, D. C.*

DEAR MR. DEUPREE: Supplementing my two letters of today I would like to give you some additional comments.

I have indicated the necessity of a time allowance for "children's diseases" and coordination of commercial manufacturing details with commercial utilization details. There are two other basic uncertainties; first, the fact that much of the contemplated construction is really brand new and, therefore, subject to unpredictable delays in design, fabrication and operation. Second, the delays which will actually occur on material and equipment deliveries are unpredictable in spite of the assumption made that we would have priority orders. The rubber production could not always get first call on everything; planes, ships, ordnance will always have equal rights, and as to some material and equipment it seems almost certain that we will run into badly delayed deliveries as well as shortage of skilled labor for most rapid field construction.

Taking into account these three factors, I do not believe that it would be reasonable for you to accept the detailed estimates which are submitted by us and by others without making a general over-all time allowance of somewhere between six and twelve months for the actual completion of the program.

If there is any real chance that our imports of rubber may be seriously reduced within the next two years (and I believe we all feel that there is some chance of this) I urge that we proceed at once with a program for the construction of four 10,000-ton rubber plants; one to be erected by each of the major tire manufacturers (who will have the responsibility himself for swallowing his own output of rubber in salable tires) and simultaneously proceed with the necessary butadiene and styrene plants.

I am sorry to say that I believe the record of the handling of this synthetic rubber matter, up to this moment, has not been a creditable one.

It was our judgment in which the Firestone and United States Rubber Companies concurred that this 40,000-ton program represented the absolute minimum program which would meet the situation as it actually exists in the United

States. If we are to meet an emergency the four large rubber companies must know in advance how to produce synthetic rubber successfully and continuously on a large scale, and how to produce tires from this rubber commercially, each with his own formula and particular conditions. At least three processes of butadiene manufacture should be developed to give assurance of immediate successful production and ultimate lowest cost. At least two processes of styrene manufacture should be similarly developed.

No amount of preliminary "preparation" by way of paper designs or erection of empty shadow plants can completely meet these problems. If we spent the next six months working out a preliminary engineering and experimentation program, at least three months out of these six months will be net lost time, and the ultimate delay may be even worse than six months, because of the possibility of cumulative difficulties of all kinds which may come upon us in increasing numbers when we are trying to carry out an emergency rubber production program under conditions which will upset normal production in this country in countless ways.

The original idea and conclusion of all the people concerned, based on the theory that the government would finance the program in some way, was that 100,000 tons per annum of synthetic rubber capacity should have been begun last summer. Reluctance to make the large expenditure required rather than any justifiable doubt as to the necessity for such a program if safety of supply were to be assured was the cause of subsequent delay. Certainly something has been learned and some money has perhaps been saved. As against this we have incurred the danger of a real shortage of rubber, which we cannot now be sure we can prevent, and we have also handicapped ourselves by pushing the rubber program along until it conflicts even more seriously than it would have been with the ship program, the plane program, and the general preparedness program. On the whole there is no doubt in my opinion that the savings accomplished by delay and more thorough engineering study have not by any means justified the losses and risks which we have already incurred by our delays and compromise.

I sincerely hope that the balancing of a set of paper promises as to when production might be obtained against estimates of how long the present supply of rubber might be stretched out will not be any longer taken as a justification for further inadequate measure. I would appreciate an opportunity to talk this matter through with anyone who has a contrary view; perhaps we could both learn something.

Sincerely yours,

F. A. HOWARD.

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EXHIBIT No. 477

[Copy]

APRIL 15TH, 1941.

Dr. E. R. WEIDLEIN,

*Social Security Building, Washington, D. C.*

DEAR DOCTOR WEIDLEIN: I am writing you this personal letter to supplement my two letters of April 10th giving our detailed estimates on time required for construction and cost of butadiene and synthetic rubber plants. In these letters I have indicated the necessity of time allowance for "children's diseases" and coordination of commercial manufacturing details with commercial utilization details. There are two other basic uncertainties: first, the fact that much of the contemplated construction is really brand new and therefore subject to unpredictable delays in design, fabrication, and operation. Second, the delays which will actually occur on material and equipment deliveries are unpredictable in spite of the assumption made that we would have priority orders. The rubber production could not always get first call on everything; planes, ships, ordnance, will always have equal rights, and as to some material and equipment it seems almost certain that we will run into badly delayed deliveries as well as shortage of skilled labor for most rapid field construction.

Taking into account these three factors, I do not believe that it would be reasonable for you to accept the detailed estimates which are submitted by us and by others without making a general over-all time allowance of somewhere between six and twelve months for the actual completion of the program.

If there is any real chance that our imports of rubber may be seriously reduced within the next two years (and I believe we all feel that there is some chance of this) I urge that we proceed at once with a program for the construction of four 10,000-ton rubber plants: one to be erected by each of the major tire manufacturers (who will have the responsibility himself for swallowing his own

output of rubber in salable tires) and simultaneously proceed with the necessary butadiene and styrene plants.

You will remember that the original idea and conclusion of your group following our meetings last Summer was that 100,000 tons per annum of synthetic-rubber capacity ought to be provided. Reluctance to make the large expenditure required rather than any real justifiable doubts as to the soundness of this conclusion was responsible for the subsequent delay. Mr. H. C. Wiess, of our Humble Company; Mr. Harvey Firestone, and myself made an effort to find a workable compromise, which would be acceptable to the R. F. C. and to the rubber companies, and the R. F. C. did go so far as to invite definite proposals from the four leading rubber companies on this outline. For some reasons, principally I believe a growing confidence that no situation could possibly obtain in the Pacific which could cut off all of our rubber for any great length of time, this compromise 40,000-ton program was not carried through, and after further very considerable delay this program was revised into a shadow plant program which would actually have resulted in the construction only of a total of 10,000 tons of rubber polymerization capacity and no additional butadiene capacity, or in the development of any butadiene and styrene process equipment suitable for quickly meeting an emergency demand for great quantities of rubber.

I take it that there is now a realization on the part of your group at least that this shadow plant program does not offer adequate protection. If that is your feeling I most certainly agree with you. I also feel that the mere preparation of detailed engineering plans for large butadiene and rubber plants does not offer a real solution of the problem. By proceeding at once with the 40,000-ton program and in no other way that I can see, will we really be making an immediate practical start on a complete solution of all of our problems. The amount of rubber produced under this program is itself important enough to be of some real help, although not much, in meeting an emergency. The important thing is that at any time while this program is actually under way the expansion of the program up to any multiple of its original size could really be accomplished almost entirely by duplicating units already completely designed and fitted into the conditions of the oil and rubber plants at which they are located.

Specifically, if the 40,000-ton program is started now it has a reasonable chance of being physically completed within about a year and a half because most of the engineering on this program has already reached a fairly advanced state. Probably this 40,000-ton program would not actually be producing good synthetic rubber tires at the rate of 40,000 tons per annum until something like six months after the date of completion of the equipment. If an emergency should actually arise, however, at any time after the next three to six months, the increase of the 40,000-ton program to 100,000 tons or even to 300,000 tons or more, could probably be accomplished and a complete new industry put on its feet as a running enterprise within eighteen months—at least there is a reasonable chance that this could be done. If on the other hand we relied upon the "paper preparation" theory and did nothing but prepare some engineering plans during the next six months I do not think it would be at all reasonable to expect the new industry to get on its feet at the designed capacity within anything less than two to two and a half years after the go-ahead order was given.

The difference between the two alternatives is that in the first case the paper plans will be checked and verified by actual progress in construction beginning immediately, which is one important saving of time; and second, the 40,000-ton program, if begun now, can be completed sufficiently in advance of a really large emergency program so that the experience with the 40,000-ton program would permit the larger program to get into production of tires and other rubber goods as fast as the facilities are physically completed.

If you like, you may take all of the estimates either for 40,000 tons or for any larger quantities, and make assumption as to availability of material and skilled labor which would cut back the estimated completion dates but there will always be a time saving of between six and twelve months in favor of the commercial development as between the two alternatives of doing nothing but paper work or actually proceeding with the commercial development now.

I sincerely hope that you and Mr. Deupree will not feel that this problem has been solved if you merely add to the last proposed shadow plant program of the R. F. C. a proposal to proceed with engineering plans on a large program. This is a useful but inadequate measure in my opinion.

Very truly yours,

FRANK A. HOWARD.

FAH:CFG

## EXHIBIT No. 478

MELLON INSTITUTE OF INDUSTRIAL RESEARCH,  
UNIVERSITY OF PITTSBURGH,  
*Pittsburgh, Pa., April 21, 1941.*

Dr. FRANK A. HOWARD,  
*30 Rockefeller Plaza, New York, N. Y.*

DEAR MR. HOWARD: I appreciate very much the view which you expressed in your favor of April 15 regarding the synthetic rubber situation. I am especially pleased to have your reaction to this problem at this time as we are going to have an important rubber meeting in Washington tomorrow and I hope we can really begin to make some definite plans. I agree with your point of view and am hopeful that we can do something constructive. With kind regards, I am

Sincerely yours,

E. R. WEIDLEIN, *Director.*

ERW:HEJ.

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EXHIBIT No. 479

MEMORANDUM FOR TUESDAY, JUNE 13, 1941

1. We are prepared to design, erect, and operate for the Government a full-sized commercial plant for the production of butadiene. Technical responsibility for the process and plant design and for starting up the plant will be undertaken by Standard Oil Development Company, which is also the owner of the certain patented processes employed.

2. The process recommended will employ refinery gases as the raw material. Standard Oil Development Co. estimates that this raw material can be made quickly available with moderate investments in the larger refineries of the United States in quantities sufficient for the production of several hundred thousand tons per annum of Buna rubber. In case of necessity Standard Oil Co. (New Jersey) interests alone (including, for this estimate, Humble Oil & Refining Co.) could produce by the process in question butadiene sufficient for at least 80,000 tons of Buna rubber.

3. It is recommended that the butadiene plant size for this process should be in the range of about 12,000 to 18,000 short tons per annum. This size is a reasonably economical one, capable of being used without great change in the largest number of refineries. In several refining locations multiples of such plants could be erected with some saving in capital and operating costs, if need should arise for the production of further large quantities of butadiene.

4. The most favorable location for the first such plant appears to be at Baton Rouge, La., or at Baytown, Texas. Up to this moment it has not been possible to decide which location offers the most advantages. This subject has been studied most intensively for the past two weeks, and it is hoped that a decision can be reached before or during these discussions.

5. The general relation of the refinery to the butadiene project is shown on the attached diagram. As shown the project divides roughly into three parts, the butadiene plant proper, the steam and power plant, and the miscellaneous equipment and connections located in the refinery itself and necessary for the supply of the raw materials and return of the byproducts.

6. It is believed that the parties should first try to fix the general outline of the whole arrangement between them for the design, construction, and operation of the plant, and if they find themselves in agreement on the general outline, they should then enter into the simplest possible agreement designed to permit the work to proceed at the earliest moment, leaving for future handling all details not essential to be settled at this moment.

Pursuant to this suggestion we append an outline of the entire arrangement and a skeleton draft of a possible agreement.

FAH:MF.

Attachments

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OUTLINE OF GENERAL ARRANGEMENT

JUNE 13, 1941.

The refining company (hereinafter called Refiner) will contract with Defense Plant Corporation (hereinafter called DPC) to prepare in cooperation with



Standard Oil Development Company general engineering and process designs for a plant to produce approximately 15,000 tons per annum of butadiene from refinery gas, to be supplied by Refiner. Refiner will endeavor to acquire for DPC a suitable site for this plant adjoining Refiner's plant. Refiner will negotiate for DPC as soon as possible contracts for the construction of this plant by one or more qualified engineering contractors. For all services performed as above Refiner shall receive as compensation in full \$——.

Refiner will submit as soon as possible a proposal for construction by Refiner itself of such facilities as may be required in connection with such plant, and which can best be constructed by Refiner, especially facilities (hereafter called Emergency Facilities) needed in Refiner's plant to provide supplies of raw materials, utilities, etc., to the butadiene plant, and to return and utilize any by-products produced. Such proposal will include provisions for the use of such Emergency Facilities by Refiner and for the optional acquisition thereof by Refiner.

Refiner will in due course submit to Rubber Reserve Corporation proposal for the supply of all necessary raw materials for the operation of said plant and for the conduct of such operation for a period not to exceed five years.

The raw material shall be supplied subject to adjustment for uncontrollable cost increases.

The operating contract shall include an option to refiner to acquire the plant if the Government no longer desires to contract for its operation or maintenance as a stand-by unit, and also a provision for its rental on a fair basis by Refiner when not required by Government.

FAH:MF.

# EXHIBIT No. 480

APRIL 6TH, 1942.

SENATE COMMITTEE INVESTIGATING NATIONAL DEFENSE PROGRAM  
(Attention: Senator Harry S. Truman, Chairman.)

*Senate Office Building, Washington, D. C.*

DEAR SIRs: In testifying before the Senate Committee, Mr. Frank A. Howard was asked to supply for the record figures on the shipment of Butyl Rubber samples produced in Butyl Rubber Pilot Plant (K Plant). At his request, I am enclosing a memorandum setting forth these figures.

I am also enclosing a copy of a memorandum prepared by J. R. Brown, Jr. setting out a record of shipments of various kinds of Synthetic Rubbers for work carried out in cooperation with the Government.

Very truly yours,

F. R. LOOFBOUROW.

FRL:jtb  
enc.

## Shipments of butyl rubber produced in pilot plant

Date	To—	Amount Shipped in Lbs.
6/40 to 9/40.....	U. S. Rubber Company:	
	General Laboratories.....	1130
	Tire Development Division.....	200
	Mechanical Goods Division.....	100
	Inner Tube Division.....	580
	General Rubber Products Division.....	500
	Wire Division.....	200
	Nangatuck Footwear Division.....	550
	The Firestone Tire and Rubber Company.....	125
	General Electric Company.....	100
	United Carbon Company.....	200
		100
		1000
		50
		200
		90
		175
		20
		50
		50
		50

*Shipments of butyl rubber produced in pilot plant—Continued*

Date	To—	Amount Shipped in Lbs.
9/6/40	Acushnet Process Company, New Bedford, Mass.	505
9/9	General Electric Company, Bridgeport, Conn.	54
9/19	Firestone Tire & Rubber Company, Akron, Ohio	100
9/20	General Electric, Schenectady, N. Y.	73
9/20	General Electric, Bridgeport, Conn.	50
10/9/40	Acushnet Process, New Bedford, Mass.	210
10/31/40	General Electric, Schenectady	25
10/31/40	General Electric, Bridgeport	50
1/7/41	U. S. Rubber, Mishawaka, Indiana	250
1/7/41	U. S. Rubber, Naugatuck, Conn.	200
5/6/41	U. S. Rubber, Passaic, N. J.	20
12/3/41	Acushnet Process, New Bedford, Mass.	50
12/24/41	U. S. Rubber, Mishawaka, Indiana	100
1/27/42	B. B. Chemical Company, Boston, Mass.	32
1/27	Acushnet Process, New Bedford, Mass.	151
1/27	Firestone Tire & Rubber, Akron	225
1/27	U. S. Rubber, Providence, R. I.	888
1/27	U. S. Rubber, Bristol, R. I.	100
1/27	U. S. Rubber, Detroit, Michigan	221
1/28	U. S. Rubber, Naugatuck, Conn.	250
2/5/42	United Carbon, Charleston, West Va.	25
2/9	Simplex Wire & Cable, Cambridge, Mass.	10
2/10	U. S. Rubber, Mishawaka, Indiana	100
2/10	U. S. Rubber, Detroit, Michigan	300
2/11	Hewett Rubber Company, Buffalo, N. Y.	100
2/13	Hewett Rubber Company, Buffalo, N. Y.	100
2/13	General Electric, Bridgeport, Conn.	120
2/16	Boston Woven Hose & Rubber, Cambridge, Mass.	200
2/18	Goodrich Company, Akron, Ohio	200
2/18/42	Goodyear Tire & Rubber, Akron, Ohio	200
2/18	R. T. Vanderbilt Company, Norwalk, Conn.	2
2/19	Firestone Tire & Rubber Co., Akron, Ohio	800
2/19	U. S. Rubber, Naugatuck, Conn.	300
2/19	U. S. Rubber, Indianapolis, Ind.	500
2/19	U. S. Rubber, Detroit, Michigan	500
2/19	Hercules Powder Company, Dover, Del.	5
2/20	Dominion Rubber Co., Montreal, Canada	100
2/24	American Anode Company, Akron, O.	50
2/24	Chemical Warfare Service, M. I. T., Boston, Mass.	100
2/24	Firestone Tire & Rubber, Akron, Ohio	200
2/26	Dayton Rubber Company, Dayton, Ohio	200
2/26	Firestone Tire & Rubber, Akron, O.	200
2/27	E. I. duPont, Fairfield, Conn.	100
3/6/42	Naugatuck Chemical, Naugatuck, Conn.	100
3/6	U. S. Rubber, Mishawaka, Indiana	500
3/6	U. S. Rubber, Indianapolis, Ind.	2000
3/9	Ohio Chemical & Mfg. Co., Cleveland, O.	10
3/13	Acushnet Process, New Bedford, Mass.	35
3/16	B. F. Goodrich, Akron, O.	1000
3/17	Firestone Tire & Rubber Co., Akron, O.	500
3/18	National Research Council, C. W. S., Ottawa, Can.	10
3/18	National Regional Research Lab., Peoria, Ill.	5
3/19	United Carbon Company, Charleston, W. Va.	10
3/25	E. I. duPont Co., Philadelphia, Pa.	10
3/26/42	Commercial Solvents, Indiana	2
3/26	Bauer & Black, Chicago, Ill.	2
3/26	J. M. Huber, New York City	10
Total shipped		17,635

ESSO LABORATORIES  
STANDARD OIL DEVELOPMENT COMPANY  
LINDEN, NEW JERSEY

P. O. Box 234, ELIZABETH, N. J.

CHEMICAL DIVISION  
P. K. FROLICH, *Director*  
J. R. BROWN, JR., *Asst. Director*

*Record of shipments of synthetic rubbers for work carried out in cooperation with the Government*

Date of Letter or Memorandum and Writer	Material Sent	To Whom Sent
Memorandum of January 17, 1939 re. meeting of 1/12/39.	5# Sample of Buna S; 5# sample of Buna N; 5# Sample of Buna X.	Left with Colonel Rogers of the Planning Branch, Commodities Division at the offices of the Assistant Secretary of War, Munitions Building, Washington.
January 19, 1939 by Per K. Frolich.	Various vulcanized sheets of "Products X and N" (butyl and Buna) the type of compounding employed being indicated by the stencilled identification mark on each sample.	Secretary, Army and Navy Munitions Board, Room 2504, Washington, D. C.
February 27, 1939 by Per K. Frolich.	5# of "Product X" (butyl)-----	Chief of the Chemical Warfare Service, Munitions Building, Washington, attention of Major Barker.
February 27, 1939 by Per K. Frolich.	10# of "Product N" (Buna N or Perbunan).	Lt. Commander J. M. Kiernan (CC), Bureau of Construction and Repairs, Room 2207 Navy Building, Washington, for Mr. Werkenthin.
October 25, 1939—Railway Express Receipt.	25-30# of Product X (butyl). (Receipt shows packaged weight of 36#.)	Mr. Philip E. Young, President of Acushnet Process Company, New Bedford, Massachusetts.
November 21, 1939 by Per K. Frolich; and Railway Express Receipt of 11/25/39.	50# of "Product N" (Buna N or Perbunan); 25# of "Product X" (butyl rubber).	Commandant's Office, Mare Island Navy Yard, Mare Island, California.
January 8, 1940 by J. R. Brown, Jr.	2 Samples of butyl rubber for Army Air Corps to be used in test work on new cooling fluid for liquid-cooled engines.	Mr. R. E. Ellis, 26 Broadway, New York, N. Y.
March 27, 1940 by J. R. Brown, Jr.	2 Samples of butyl rubber to be sent to Army Air Corps for test as high-tension wire insulation.	Mr. E. R. Ellis, 26 Broadway, New York.
April 26, 1940, by I. E. Lightbown.	Calendered sheet of butyl for gas-mask facepieces.	Mr. Philip T. Gidley, Development Engineer, Acushnet Process Company, New Bedford, Mass.
May 21, 1940 by Per K. Frolich.	1 Deck cleat made from butyl rubber.	Navy Department, Bureau of Construction and Repair, Washington, attention of Commander E. C. Forsyth.
June 18, 1940 by Per K. Frolich.	2—200' Lengths and 1—100' length of butyl rubber covered wire; and 4 press-cured sample sheets of butyl rubber insulating material.	Laboratory Officer, U. S. Navy Yard, New York, attention of Commander J. J. Twomey.
June 19, 1940 by Per K. Frolich.	25# of butyl rubber-----	Mare Island Rubber Laboratory, Mare Island Navy Yard, Mare Island, California, marked "For Experimental Purposes."
July 2, 1940 by Per K. Frolich.	20 Butyl rubber deck cleats for experimental work.	Bureau of Construction and Repair, Navy Department, Washington, attention of Commander E. C. Forsyth.
July 9, 1940 by J. R. Brown, Jr.	4 Pressure-cured slabs of butyl rubber.	Laboratory Officer, U. S. Navy Yard, New York, attention of Commander J. J. Twomey.
August 29, 1940 by J. A. Britton, Jr. (L. B. Turner).	4 Sheets plybutene 2' x 1½' x ¼" to ½" .	Mr. C. J. Cleary, Materiel Division, Army Air Corps, Wright Field, Dayton, Ohio.
September 6, 1940, by J. R. Brown, Jr.	500# Butyl rubber (Type X-A) for production of gas masks for Chemical Warfare Service.	Mr. P. E. Young, President, Acushnet Process Company, New Bedford, Massachusetts.
September 19, 1940 by I. E. Lightbown.	500# Butyl rubber (Type X-A) to be made into deck matting for the Navy.	U. S. Rubber Company, Passaic, New Jersey, attention of Mr. Gartrell.
October 30, 1940 by J. R. Brown, Jr.	Samples of cured butyl rubber for testing resistance to chemical attack for special Army and Navy research project.	Professor H. C. Urey, Columbia University, New York, N. Y.
November 22, 1940 by J. R. Brown, Jr.	Sample of compounded butyl for making thin films for gas permeability measurements.	Dr. J. P. Sager, National Bureau of Standards, Washington.

*Record of shipments of synthetic rubbers for work carried out in cooperation with the Government—Continued*

Date of Letter or Memorandum and Writer	Material Sent	To Whom Sent
December 10, 1940 by Per K. Frolich.	100# Butyl rubber (Type A).....	Rubber Laboratory, Navy Yard, Mare Island, California.
March 13, 1941, by J. R. Brown, Jr.	Sample of cured butyl rubber to be used for gaskets on research apparatus for Navy project.	Professor H. C. Urey, Columbia University, New York, N. Y.
April 2, 1941 by I. E. Lightbown.	25# Sample of Perbunan.....	Rubber Laboratory, Mare Island Navy Yard, Vallejo, California.
May 14, 1941 by J. R. Brown, Jr.	1# Butyl for making up cement .....	Professor H. C. Urey, Columbia University, New York, N. Y.
August 11, 1941 by Per K. Frolich.	200# T-132 for use on ignition cable for the Air Corps.	General Electric Company, Bridgeport Works, Bridgeport, Connecticut, attention of Mr. Schwartz.
August 20, 1941 by J. R. Brown, Jr.	7—1# Samples of various rubbers; 4—20 mil sheets of rubbers; sheets of 10—20 mils of rubbers.	Captain Rothschild, Chemical Warfare Service, M. I. T., Cambridge, Massachusetts.
September 16, 1941 by J. R. Brown, Jr.	4 Sheets 6" x 6" cured butyl for pump diaphragm on Navy research project.	Professor J. R. Dunning, Columbia University, New York, N. Y.
September 25, 1941 by J. R. Brown, Jr.	Several butyl rubber-fabric pump diaphragms.	Professor J. R. Dunning, Columbia University, New York, N. Y.
October 23, 1941 by J. R. Brown, Jr.	10# of Polybutene.	Captain Rothschild, Chemical Warfare Service, M. I. T., Cambridge, Massachusetts.
November 26, 1941 by J. R. Brown, Jr.	Thin cured sheets of rubber-polybutene and neoprene-polybutene blends for mustard gas tests.	Captain Rothschild, Chemical Warfare Service, M. I. T., Cambridge, Massachusetts, attention of Captain Quilty.
December 8, 1941 by J. R. Brown, Jr.	2 Sheets of butyl rubber suitable for gaskets (in connection with work which he is doing for the National Defense Research Committee).	Professor J. W. Beams, Rouss Physical Laboratory, University of Virginia, Charlottesville, Virginia.
December 16, 1941 by J. R. Brown, Jr.	Samples of various synthetic rubbers for test as ultra-high frequency insulation (National Defense Research Committee project).	Professor A. von Hippel, M. I. T., Cambridge, Massachusetts.
December 29, 1941 by J. R. Brown, Jr.	10 Duplicate sets of thin sheets of rubber-like material for test with mustard gas.	Captain J. H. Rothschild, Chemical Warfare Service, M. I. T., Cambridge, Massachusetts.
January 9, 1942 by J. R. Brown, Jr.	6 x 6 x .012 sheets of polybutene blended with various polymers to be tested for resistance to mustard gas.	Captain J. H. Rothschild, Chemical Warfare Service, M. I. T., Cambridge, Massachusetts.
January 15, 1942 by R. L. Holmes.	11 Samples of polybutene and polybutene-resin blends for experimental purposes on bullet-proof fuel tanks.	Dr. John J. Grebe, Dow Chemical Company, Midland, Michigan.
January 22, 1942 by J. R. Brown, Jr.	8 Samples in triplicate for tests on mustard gas resistance.	Captain J. H. Rothschild, Chemical Warfare Service, M. I. T., Cambridge, Massachusetts, attention of Captain Quilty.
January 27, 1942 by R. L. Holmes.	3 Sheets of rubber-polybutene blend for testing mustard gas resistance.	Mr. W. H. Shields, Moore and Munger, 33 Rector Street, New York, N. Y.
February 2, 1942 by J. R. Brown, Jr.	3 Sheets of butyl rubber to be tested for resistance to mustard gas.	Captain J. H. Rothschild, Chemical Warfare Service, M. I. T., Cambridge, Massachusetts.
February 6, 1942 by J. R. Brown, Jr.	4 Sheets of butyl rubber.....	Captain Rothschild, Chemical Warfare Service, M. I. T., Cambridge, Massachusetts.
February 7, 1942 by J. R. Brown, Jr.	7 Sheets of polybutene B-100 rubber blend.	Captain Rothschild, Chemical Warfare Service, M. I. T., Cambridge, Massachusetts, attention of Captain Quilty.
February 24, 1942 by J. R. Brown, Jr.	99# Butyl B for experimental manufacture of mustard gas resistant cloth.	Captain Rothschild, Chemical Warfare Service, M. I. T., Cambridge, Massachusetts.
March 2, 1942 by J. R. Brown, Jr.	6 Sheets synthetic rubber blends to be tested for mustard gas resistance.	Captain Rothschild, Chemical Warfare Service, M. I. T., Cambridge, Massachusetts.
March 18, 1942 by W. J. Sparks.	1 All-butyl rubber tire made by U. S. Rubber Company.	Dr. Henry G. Knight, Chief, Bureau of Agricultural Chemistry and Engineering, U. S. Department of Agriculture, Washington, D. C.

(See also: Mr. R. E. Ellis' letter of 1/11/40 submitting above material to the Chief of the Air Corps, Materiel Division, Wright Field, Dayton, Ohio, attention of Mr. R. V. Kerley.)

J. R. BROWN, Jr.

JRB:HFE  
3/30/42

## EXHIBIT No. 481

## INVESTIGATION OF NATIONAL DEFENSE PROGRAM

## Closed Hearing—Subcommittee on Rubber

AFTER RECESS\*—MARCH 23, 1942

The hearing was resumed at 1:40 p. m., the chairman, Senator Herring, presiding.

The CHAIRMAN. I think we might just as well go ahead. If there are those who are not here, it isn't our fault.

I particularly want to make the record clear as to the relationship between the Standard Oil Company of New Jersey and the Standard Development Company.

TESTIMONY OF W. S. FARISH, PRESIDENT, STANDARD OIL COMPANY, NEW JERSEY, NEW YORK CITY

Mr. FARISH. The Standard Development Company is a wholly owned subsidiary of the Standard Oil of New Jersey.

The CHAIRMAN. The Standard Oil representatives were present at the conference on synthetic rubber held in 1940 by the Defense Advisory Commission. That is correct, isn't it?

Mr. FARISH. I didn't get the question.

The CHAIRMAN. The Standard Oil representatives were present at the conferences on synthetic rubber held in 1940 by the Defense Advisory Commission on August 7?

Mr. FARISH. Yes, sir.

Mr. CLARK. Did you attend those conferences yourself, Mr. Farish?

Mr. FARISH. No, sir. Mr. Howard did.

The CHAIRMAN. The record shows that the Standard Oil of New Jersey agreed to submit engineering plans by October 8, 1940, for a substantial part of 100,000 tons of synthetic capacity recommended.

Mr. FARISH. That is correct. As I recall, it was for a 30,000-ton plant.

Mr. FRANK A. HOWARD (President, Standard Oil Development Company, New York City). Yes; that is what is understood, for butadiene, not for making the complete rubber, but for the production of butadiene.

The CHAIRMAN. Plants for the production of synthetic rubber from oil can be built without diverting construction materials and labor from essential products. That seems to have been the representation made at that time.

Mr. HOWARD. I think that is correct.

The CHAIRMAN. Before the war this company on its own responsibility had spent or contracted for \$12,000,000 in building plants providing raw materials for making synthetic rubber from petroleum.

Mr. HOWARD. That was before we got into the war.

The CHAIRMAN. Yes.

Mr. HOWARD. Correct.

Senator BREWSTER. Twelve million dollars, was it?

The CHAIRMAN. Twelve million dollars in buildings, yes.

Mr. HOWARD. Part of that was in butyl rubber.

Mr. FARISH. That is right. It was synthetic rubber.

The CHAIRMAN. Here is a statement which puzzled us. Since Pearl Harbor this company has undertaken to produce 200,000 short tons annually.

Mr. FARISH. That statement I made was in the press, and that covered production in this country and Canada, and it was meant to cover—that was the statement of March 10—production for the construction program that was under way with the Rubber Reserve at that time.

Senator BREWSTER. May we have that statement of March 10 for the record, that is the one given out by you?

Mr. FARISH. I will give it to you, sir.

Mr. CLARK. We have, Senator, extracts from the statement released to the press.

The CHAIRMAN. The patent agreements were arranged and signed by the Government, approved December '41, covering all questions bearing on Buna rubber?

Mr. FARISH. Correct.

\*Testimony heard during the morning executive session of the committee was not by Standard Oil officials and was not ordered printed.

The CHAIRMAN. On butyl rubber your company is offering to industry and the Government royalty-free licenses for the duration of the war and reasonable royalties to be determined by the Government authorities afterwards?

Mr. FARISH. Correct.

Senator BREWSTER. What was that?

Mr. FARISH. At the bottom of the statement, Senator, the last paragraph in the statement.

The CHAIRMAN. I think perhaps we might as well proceed, Mr. Farish, as you wish to.

Mr. FARISH. I would like to state that we find ourselves in accord with the statements made by Mr. Litchfield of Goodyear and Mr. Collyer of the Goodrich Co. this morning insofar as our knowledge of the synthetic-rubber situation is concerned, and as to our relations with them. There are several minor differences of little importance, not enough to take time to correct for the record.

I would like to invite the attention of you gentlemen to one basic consideration when we talk about synthetic rubber, and that is that synthetic rubber, as we understand it, is a product that is made from many different raw materials and many different processes. These products mainly fall into two classes, one that is known as specialty rubber, or a substitute for raw rubber that is used in the manufacture of specialty goods, and the other is a rubber that is used in the ordinary run of rubber consumption—tires, and where the cheaper grades of rubber are used now, commercial articles of many kinds.

The development of the specialty rubbers, as we understand them, had proceeded in this country to considerable degree over the past years. Du Pont made a product and found a market. As I understood, they said their market doubled every year, starting back from a small quantity some years ago, and these other rubber companies have developed specialty rubbers which they found a market for, and there is a specialty rubber made called Buna-N, Perbunan, that is made from the processes that we have acquired from the I. G. Farben Industrie. That rubber is all of one class as we understand. It is a class of rubber that goes into specialty products. The development of the rubber for tires, or tire rubber, probably has not progressed in this country to anything like the degree that the specialty rubbers have, and the reason for that is quite simple. Specialty rubbers commanded a price or value in the market of about a dollar a pound, and of course the ordinary run of rubber couldn't attain a price more than that of competitive natural rubber, something on the order of 12 to 15 cents a pound, so there is quite a range in values. At the time this much-discussed royalty of seven cents a pound was asked for the royalty on the processes that we were interested in, the value of specialty rubber at that was a dollar a pound, and when the value or market price dropped to seventy cents we dropped the royalty asked to seven per cent of the value of the rubber. That is for the specialty rubber. That brief statement, I think, is worth keeping in mind in discussing the whole question of synthetic rubber.

I might add that the market of the specialty rubber was an open, competitive market where competition was quite keen and where there was no lack of competition.

Perhaps it will be helpful at this stage to review briefly our connections with the rubber companies and this primary effort to get a rubber program started in the United States. I went through the files, with the help of Mr. Howard here, and Dr. Hopkins of our staff, Saturday, and I present this to you gentlemen as our statement of those relations. It will be simpler, perhaps, for me to read this; it will take less time.

"In 1932 and 1933, Jasco"—may I say there Jasco is the American Company that controls these rubber patents of which we owned 50 percent of the stock and the I. G. Farben Industrie owned 50 percent of the stock—"attempted to work out an arrangement with Goodrich Rubber Company through which arrangement I. G. F."—for abbreviation I think we can leave it I. G. F.—"would furnish samples of a rubber synthetic compound called Buna and Goodrich would experiment in the compounding and manufacturing properties of this synthetic rubber. This effort failed. In 1934 a similar effort was instigated by Jasco, by which the I. G. F. sent a tire specialist, Dr. Stoeckling, over here with five tons of synthetic rubber, and the General Tire and Rubber Company undertook to experiment with it. The results of this experiment were unsatisfactory. I. G. F.'s representative was contacted by Goodyear. Goodyear later asked us to arrange for them to have samples to carry on a similar experiment. I. G. F. replied that they did not care to carry on experiments with more than one company at a time. At this time there was no market for the synthetic rubber, and it was considered no good for tires.

"In December 1934 Firestone wrote us concerning a visit which had been made to them by Dr. Stoeckling, the German tire expert, early in the year, at which Stoeckling had suggested that he would soon be able to send them samples. We transmitted this request, and the I. G. F. replied that nothing further could be done with the rubber at that time."

I might add by way of afterthought that we felt at that time that the Germans themselves, the I. G. people, were discouraged in their production efforts, and the quality of the rubber wasn't satisfactory.

"From 1934 through 1937 numerous contacts and communications were had with the various rubber companies on the development of the rubber and in exchange of views. Nothing specific as to license or contracts was discussed by anyone during this period, but there was an indication on the part of the rubber companies of a definite desire to be in on the ground floor of any development that we might undertake.

"During the entire year 1937 the I. G. F.'s development of the rubber had proceeded to the point where they felt further experimentation was warranted, and many samples were sent to numerous rubber companies, small ones and large ones, samples ranging from 50 pounds to 1,000 pounds. These samples were what was known as Perbunan, the specialty rubber, and Buna-S, the tire rubber. Both kinds were sent over. In April 1938 the Goodyear Company and Dow Chemical Company, who apparently had some arrangements between themselves concerning synthetic rubber, asked Jasco for the exclusive license under the Buna patents for the manufacture of rubber.

"This request of Goodyear and Dow was discouraged because Jasco did not wish to make any exclusive arrangements.

"Early in December 1938, at our insistence, Dr. ter Meer, head of I. G.'s synthetic rubber development, came to the United States and arranged with five leading rubber companies for an experimental program for manufacturing tires with synthetic rubber; later, early in 1939, sending large samples of Buna-S—this is tire rubber—which they made from coal, and an expert, Dr. Koch, to help in the experimentation.

"We want to add that I. G.'s interest in this development was the development of new markets. Our interest as minority partners, likewise the same as I. G.'s—new markets, plus—

Senator BREWSTER (interposing). What do you mean by "minority"?

Mr. FARISH. Well, by minority partners—I will explain that as I come to it, Senator, in the explanation of the I. G. contract.

"Likewise the same as I. G.'s—new markets, plus the fact that we hoped and expected to produce the same type of rubber from oil in the United States.

"When war broke out in 1939 it became apparent that our operations, with only minority interest in these patents, would become impossible. As a result, we negotiated a readjustment and obtained complete control of these patents for the United States, the British and French Empires. These negotiations were carried on in Holland. As soon as our representatives returned from Europe we informed the War and Navy Departments that we had this complete control and offered our cooperation in speeding up the production of synthetic rubber for the national defense of the United States.

"In November, '39, we immediately contacted and conferred with the five leading tire companies who were just completing their tests. We were trying to find the best way to create a Buna synthetic rubber development in the United States. These contacts resulted in our offering to license all five of these companies to produce Buna rubber. We all understood that Buna N, the specialty rubber, was the only product that had commercial possibilities at that time. The rubber companies advised us that it would be impossible to support any production of Buna S, the tire rubber, without considerable government subsidy and support of it. This license offered to cover the production of licensees for their own needs. Any surplus they produced was to be sold to us for resale to the general trade. This plan was prompted by our desire to make this rubber available to every manufacturer of rubber goods. We were at that time uncertain as to the lowest-cost method of supplying the general trade. If we secured enough in the way of surplus from the tire companies, this seemed to be the best answer. The value of Perbunan, the specialty rubber, at this time was about one dollar a pound. The royalty asked was seven cents a pound. The price having dropped during the interim to about seventy cents a pound, this royalty was adjusted on December 31, 1940, to seven percent of the sales price. At the same time, we fixed the royalty to be paid on Buna S, the tire rubber, at five percent for the first 100,000 tons to be manufactured in the aggregate by all

licensees, four percent for the next hundred thousand, and three percent for all over that."

That is a brief summary of the negotiations and discussions leading up to the production of Buna N and Buna S in this country.

Senator BREWSTER. Were you given full information regarding the German processes and patents?

Mr. FARISH. No, I don't think we were, Senator.

Senator BREWSTER. Did you have discussions about that?

Mr. FARISH. With the Germans?

Senator BREWSTER. Yes.

Mr. FARISH. Yes.

Senator BREWSTER. Did they show increasing reluctance to turn over to you all information they had?

Mr. FARISH. Well, I can say yes, I guess is the answer to that. But let me explain it this way. We started out with the Germans in an attempt to develop all we could here in the production of this rubber. They didn't know when they started out, the original start, whether it was going to be a specialty rubber or what kind of rubber it was going to be, and we carried on a joint experiment here in the United States by this Jasco company, on which \$1,600,000 I think was the figure expended down at Baton Rouge, Louisiana, one of our subsidiary plants, in the development of the rubber under their patents, under their processes. I don't know the technical term; it is acetylene arc process.

Mr. HOWARD. That is it.

Mr. FARISH. That proved technically possible and satisfactory, but commercially no good. The cost was too high. So that experiment was abandoned. Then the Germans carried on their experiments at home, and of course we carried on ours here to find the raw materials from oil to make these synthetic rubbers, and we were advised along about 1935, was it?

Mr. HOWARD. Yes.

Mr. FARISH. That the burden of experiment and the cost had grown too great for the company, for the I. G. Farben Industrie, to carry on, and the German government had undertaken the obligation or the responsibility for development of the rubber and was paying the bills. At that time, or shortly after that, they were told that they could not furnish us any information from this German government subsidized operation. Our relations with them, however, still were on the friendliest of terms, and they gave us what information they had from their own laboratory work that they were paying for. But this government work they gave us no information on, but they did through that effort develop these rubbers that we speak of, and the I. G. did, in the dates I have just given you, send over these samples and undertake to educate us here in America on how to use them.

Senator BREWSTER. You spoke of yourself as having a minority interest. That referred to the 50 percent?

Mr. FARISH. That was what?

Senator BREWSTER. Did that refer to the 50 percent?

Mr. FARISH. No, no, Senator.

Senator BREWSTER. Who do you mean by "minority interest"?

Mr. FARISH. Well, I guess I can best describe that by saying that goes back to the original contract with the German I. G. Chemical Company, the German I. G. Farben Industrie. Let me see, I guess the briefest way to explain that is this: In 1929 the Standard Oil Company closed a contract with the German I. G. Farben Industrie by which we acquired outside of Germany 80 percent interest and control of what was then known as the hydrogenation process. That is the process of making oil and gasoline from coal. And we also acquired by that contract all of the patents and processes that this chemical company had or could develop until 1947 that came from and pertained entirely to oil. We paid them in Jersey Company stock approximately two percent of the then issued stock, which had a book value of about thirty million dollars. That was the original contract. In other words, if I have made it clear, by that contract we got an eighty percent world-wide interest outside of Germany in what they had in this hydrogenation process and in any patents or processes that they developed pertaining purely to oil.

Senator BREWSTER. That isn't confined at all to synthetic rubber. That is general?

Mr. FARISH. If I may go on, that is what we got from the Germans, and we in turn agreed with the Germans that we would sell them, at a price agreed upon at the time, any patents or processes that we discovered in our laboratories



dealing with purely chemical production, chemical products. In other words, they said, "We don't want to give you fellows everything we have got in oil and have you compete with us in the chemical field," but we weren't in the chemical field anyway, but it was the protection that they wanted, and we said, "All right, we will do that." That was, we agreed to sell them at the time any purely chemical development that we might find.

That left an intermediate zone, don't you see? Oil was described and listed and there was a chemical zone on the other side. That left an intermediate zone, and this Jasco Company was formed to take care of the processes in this intermediate zone. We owned 50 percent of the stock of Jasco, which was nominal, just a company formed to manage and handle it, and they owned 50 percent, and we were to have, own, and control five-eighths interest in anything that we originated that would fall into this intermediate zone that Jasco had, and they would own five-eighths interest and the control of the patents on anything that they originated that fell into that zone. On anything they originated, we would get three-eighths of the profits or royalties, and they would get five-eighths, and on anything we originated we would get five-eighths and they would get three-eighths.

Senator BREWSTER. That was the intermediate zone?

Mr. FARISH. That was the intermediate zone. That was chemical products from oil raw material. Synthetic rubber came into that intermediate zone, and the I. G. controlled, obviously, the patents and the processes that they developed pertaining to synthetic rubber. We had, as I say, a minority, and we were minority partners. We got three-eighths of the profits. They had control as to what was done with it. When I say we got them to do thus and so in this memorandum I have just read you, we asked them—

Senator TRUMAN (interposing). May I interrupt the witness just a moment, Mr. Chairman, to make a suggestion to the chairman of the subcommittee?

The CHAIRMAN. Yes.

Senator TRUMAN. The record for this hearing is strictly confidential and is being made by the record clerk for this committee. I don't believe that it is ethical for these other people to be making records here now because they are only here by courtesy.

The CHAIRMAN. We will proceed that way.

Mr. FARISH. I have no objection, sir.

Senator TRUMAN. I know that, but this is our confidential record, and when we get ready to put it out we will furnish these gentlemen with copies of it.

Proceed. I didn't want to interrupt you, but I think one record is all we need here.

Senator BREWSTER. Now, on this minority that involved, I assume, the creation of further subsidiaries to handle the patents, for instance, associated with synthetic rubber, or did you still handle those simply through Jasco?

Mr. FARISH. Through Jasco.

Senator BREWSTER. While you had a 50-percent interest in Jasco, you only had a three-eighths interest in the patents originated by the Germans?

Mr. FARISH. That is correct.

Senator BREWSTER. Owned by Jasco?

Mr. FARISH. That is correct.

Senator BREWSTER. But Jasco determined what would be done with those, I assume?

Mr. FARISH. Yes; Jasco determined it, but the originator had control of the processes that they originated.

Senator BREWSTER. That doesn't quite click.

Mr. FARISH. No; as I tried to explain, Jasco was only formed as a negotiation medium.

Senator BREWSTER. Who ran Jasco?

Mr. FARISH. Well, I don't know. Mr. Howard can answer that better than I can. Part of the time we had the president of Jasco and part of the time they had the president of Jasco, but the originating developer had control of his particular process.

Senator BREWSTER. That was a contract?

Mr. HOWARD. Yes, sir.

Senator BREWSTER. So that if Jasco sought to use patents or processes developed by the Germans, they couldn't do that unless the Germans consented.

Mr. FARISH. That is correct.

Senator BREWSTER. That was correct?

Mr. FARISH. Yes.

Senator BREWSTER. But if they were used you got three-eighths of the proceeds?

Mr. FARISH. That is correct.

Senator BREWSTER. When did the Germans first begin to produce synthetic rubber in quantities?

Mr. FARISH. I don't know that I can answer that, Senator. Maybe Mr. Howard can.

Mr. HOWARD. In Germany I believe about '37, perhaps '38. It was a very slow growth. There was no large production until the first commercial plant, which was finished just shortly before the war. I thought it was a 25,000-ton plant, either twenty or twenty-five. That was their first large production of synthetic rubber, and it was finished shortly before the war.

Senator BREWSTER. And what was the position of the Germans as to use of this synthetic rubber process outside Germany?

Mr. HOWARD. They wished to sell it and get the royalties for it.

Senator BREWSTER. In this country, or elsewhere?

Mr. HOWARD. Yes, sir.

Senator BREWSTER. And they would have had five-eighths of those royalties?

Mr. HOWARD. That is correct, sir.

Senator BREWSTER. Up to the time of your post-war agreement?

Mr. HOWARD. That is correct.

Mr. FARISH. That is correct.

Mr. HOWARD. There is one more complication, if I may point out about this thing. Under the Jasco agreement our rights did not go to the Buna process in its entirety, but only to the extent that the Buna rubber was made out of oil or gas. The manufacture of Buna rubber from coal was a process in which we had no interest whatsoever.

Senator BREWSTER. That was the one the Germans finally used?

Mr. HOWARD. That was the one they were actually using in Germany. We had no claim or right to that process at all.

The CHAIRMAN. Did they develop the process of Buna rubber out of petroleum products or did you?

Mr. FARISH. We did.

The CHAIRMAN. So you had five-eighths of that.

Mr. FARISH. Yes, sir.

Mr. HOWARD. That had been an improvement on their Buna process and they would have had the control of the process as a whole.

Senator BREWSTER. Even though it was coming from oil products?

Mr. HOWARD. Yes, sir.

Senator TRUMAN. Then you gave them a five-eighth interest in your oil process but got nothing out of the coal process?

Mr. FARISH. No, Senator.

Senator TRUMAN. It seems to me you were very liberal on that.

Mr. FARISH. Let me go on. I just explained as you came in, under this original contract with the I. G. we got a three-eighth share of the income or profits and they got five-eighths of anything that they originated in the way of chemistry that came from oil. Now, what Mr. Howard has just said, as I understand it, is that from the fact that we developed in our own laboratories a process for making butadiene, to be exact now, from oil, it came within the German process because that was what they made out of coal, in turn converted into rubber.

Senator TRUMAN. But you gave five-eighths of your oil process and got no interest in the coal process.

Mr. FARISH. We always had a three-eighths interest—oh, in the the coal process. No; we had no interest in the coal process.

Senator TRUMAN. That is exactly what I am saying.

Mr. FARISH. None whatever.

Mr. CLARK. On this 80-20 arrangement, Mr. Farish, you have exclusive rights throughout the world except in Germany to make synthetic gasoline, is that correct?

Mr. FARISH. Subject to 20 percent income going to the I. G.

Mr. CLARK. And the hydrogenation process was used to make that synthetic gasoline?

Mr. FARISH. That is correct.

Mr. CLARK. Was that ever successful?

Mr. FARISH. Yes.

Mr. CLARK. Have you had any commercial sales out of that contract of any value?

Mr. FARISH. Well, we didn't pursue it commercially to make gasoline because the cost was too great.

Mr. CLARK. Are you drawing a comparison with regard to the value of the 50-50 arrangement as compared to the 80-20 arrangement?

Mr. FARISH. No; I am not drawing any comparison. We have considered the hydrogenation process a very valuable process, yes; because through hydrogenation we have made a number of synthetic products of value to the oil industry, and through hydrogenation we made the first 100-octane gasoline in this country, in the world, and that stabilized our flying forces on 100-octane gasoline before the armies of the rest of the world had any 100-octane gasoline.

Senator TRUMAN. Did the I. G. Farben get the same process for hundred-octane gas that you had?

Mr. FARISH. Yes. Of course, it was made through their own process, through the hydrogenation process. They didn't have the petroleum, though, Senator. As far as I know, they have never made any hundred-octane gasoline in Germany.

Senator TRUMAN. Now, with the Roumanian fields they ought to be able to do it, oughtn't they?

Mr. FARISH. They probably could, but they are making theirs from coal, as I understand it, and they probably need the petroleum just as badly in other directions. But they could do it, of course.

Mr. CLARK. Under the Jasco arrangement, you were to turn over to I. G. Farben any newly discovered patents and processes and know-how with regard to synthetic rubber? Am I correct?

Mr. FARISH. Yes. That is my understanding.

Mr. CLARK. Can you tell us just what processes were turned over to Germany?

Mr. FARISH. I can't. Mr. Howard will have to answer that; he is closer to it than I am, closer to the detail.

Mr. HOWARD. I am sorry. There is a false assumption in your question, Mr. Clark. You said "Germany." The Jasco arrangement—

Mr. CLARK (interposing). I G. Farben, I should say.

Mr. HOWARD. The Jasco arrangement has no application to Germany, and, therefore, while we were obligated to turn over to the Jasco Company our processes for making chemical products from oil raw material, subject to our control, that did not go to Germany.

Mr. CLARK. Assuming that you had the control.

Mr. HOWARD. It applied to the world outside of Germany, and if the Germans wanted any rights in our processes going into Jasco for Germany, they would have had to make a separate trade for it.

Mr. CLARK. I assume from what went on before that there was a change, there was a fluctuating change in the leadership and policy making of this Jasco concern. Is that right?

Mr. FARISH. That was a courtesy matter, I think; there wasn't any change in policy. The policy was fixed by the contract.

Mr. CLARK. There had to be a meeting of minds, had there not, on policy by both the I. G. Farben representatives and yourselves?

Mr. FARISH. I guess there was on any general question of policy, but control of these processes was by contract, and what was done under them was arranged by contract.

Mr. HOWARD. For example, in Germany as a part of this trade we took the right to sell in Germany the gasoline that the I. G. made there. That was another feature of the same transaction. They were making it from coal in Germany. That is an example of the accuracy of the information you have received on the contracts.

Senator TRUMAN. We want to get the exact truth in the matter, because we expect to make a public record of this.

Mr. HOWARD. Certainly, Senator.

Senator TRUMAN. The only reason we are holding this hearing with Senator Herring as chairman of this subcommittee is to get an outline of the situation so that we will not make public anything that is of value to the enemy, but we want to know the facts in regard to all these contracts. We are not holding any ex parte hearing.

Mr. FARISH. Here is a statement of facts of the situation, Senator, as we interpret them.

Senator BREWSTER. Is this the statement you read?

Mr. FARISH. No, sir; this is a more complete statement dealing with the whole set-up.

The CHAIRMAN. We will have those put in the record.

Senator TRUMAN. You understand you are going to be asked publicly to testify on this subject, and we want to know what the facts are.

Mr. FARISH. All right, sir; I didn't know that, but I am willing to.

Senator CONNALLY. Mr. Farish, I would like to ask you one question.

Senator TRUMAN. Go ahead, Senator.

Senator CONNALLY. When you entered these negotiations with Farben in Germany, or anybody else over there, did you do it with any contemplation of war or our becoming involved in war and needing these articles in the way that we now find ourselves needing them? Or was it simply a commercial business transaction that you were contemplating?

Mr. FARISH. It was always, Senator, on a commercial or business basis, and with only commercial objectives in mind. I might say up to September arrangement made with the Germans, in September, '39, when they were already at war, and we felt that we couldn't have negotiations freely with them, and that we couldn't carry on the development as it should be carried on, and that we would be hamstrung in doing anything, with their having a contractual control of something that we wanted to deal with outside of Germany, in the world outside of the world at war.

The CHAIRMAN. Part of your negotiations were back in 1929?

Mr. FARISH. Correct, sir; not the first negotiations—the contract was concluded in 1929.

The CHAIRMAN. Of course, no one could anticipate a war in '41 at that time.

Mr. FARISH. We weren't thinking about it.

Senator BREWSTER. Of course, as you know, they have given the matter the construction that they rather gave the world to you in oil and you gave them the world in chemicals.

Mr. FARISH. We didn't have anything to give, Senator.

The CHAIRMAN (addressing Senator BREWSTER). They had no chemicals, though.

Senator BREWSTER. That is why you thought it was a pretty good trade?

Mr. FARISH. Yes, sir.

Senator BREWSTER. You were interested in oil and they were interested in chemicals.

Mr. FARISH. That is correct.

Senator BREWSTER. They evidently considered your agreement in that regard might have some value, I suppose. That is, they didn't want you moving over, let us say, into the chemical field.

Mr. FARISH. That is correct.

Senator BREWSTER. And you figured that their knowledge of patents and processes was worth the thirty million dollars you paid them?

Mr. FARISH. We certainly thought so at the time.

Senator BREWSTER. And you knew that their concept of the future was, I suppose, let us say dynamite, that they were thinking in highly nationalistic terms?

Mr. FARISH. Certainly; and I might add in terms of self-sufficiency.

Senator BREWSTER. Yes.

Mr. FARISH. Much more directly than we were.

Senator BREWSTER. Of course, it is very easy—

Mr. FARISH (interposing). If you will pardon me right there before you change the topic, may I add that we felt also that they had the best aggregation of technical talent in research in the world, and that that tie-up by which we got all they could develop from petroleum was going to have a future value for us. I think events have justified it. It has had a future value to us.

May I go on just a second, please, sir?

Senator BREWSTER. Yes; certainly.

Mr. FARISH. Because from that tie-up we have secured the hydro-forming process through which we are able to make synthetic toluene from petroleum today, directly from that contract, just as the synthetic rubber program, as we see it, our part of that at least flows from that contract, and as I stated, the original 100-octane gasoline production flowed from that contract.

Senator BREWSTER. So that you attribute the 100-octane gas also in substantial measure to their contracts?

Mr. FARISH. The start of it. We have since found cheaper methods of producing it, but that was the original 100-octane gasoline.

Senator CONNALLY. Toluol is important, too, isn't it, in munitions, explosives, in the manufacture of explosives for the Army and Navy?

Mr. FARISH. It is the base for TNT, Senator. The volume of toluol that we are getting in this country is coming from synthetic production from petroleum.

Senator CONNALLY. In that way I mean it is a necessity for the war effort.

Mr. FARISH. That is correct.

Senator CONNALLY. Pardon me for interrupting. While you were on toluol I wanted to ask that.

Senator BREWSTER. The German Government, as you knew, was in a good deal closer contact with the progress of the I. G. Farben than is the case with our own Government. Would that be correct?

Mr. FARISH. With similar efforts in this country?

Senator BREWSTER. Yes.

Mr. FARISH. Unquestionably.

Senator BREWSTER. And they were taking an increasingly considerable interest in the significance of this whole development?

Mr. FARISH. I judge so.

Senator BREWSTER. And you understand how it is perhaps more or less easy to give those things a certain sinister significance.

Mr. FARISH. Certainly.

Senator BREWSTER. I think, from what I have heard to date, the more quickly all those things are acknowledged, the better, and let the chips fall where they may. I gather that is the problem you have been concerned with in recent weeks and months.

Mr. FARISH. Correct, sir. In other words, Senator, I can't find in my own thinking and in our own discussions of this synthetic rubber question any reason why any of the rubber companies in the United States or any of the oil companies in the United States would do anything but encourage and foster the development of synthetic rubber. There is no logic, there is no basis for any other attitude, as I see the situation. Without rubber to make into tires, and rubber fabrications of all kinds, the rubber companies' business will dry up, and without rubber to run automobiles on our business dries up. So every legitimate interest that the oil industry and the rubber industry has is to foster anything that is going to assure us of a continued supply of rubber, synthetic or natural, so I can't find any influence or any reason why there should be any delay or any obstacle or anything put in the way of the development of synthetic rubber by either industry.

Senator BREWSTER. Are you at the present time preparing to produce synthetic rubber in large quantities?

Mr. FARISH. Yes, sir.

Senator BREWSTER. How much have you in contemplation under your present contract?

Mr. FARISH. Well, I made this statement on March 10, that our organization expected to produce something over 200,000 tons total of rubber and raw material. Now, whether that materializes or not depends on whether some of these negotiations that are now on are finally closed with the Rubber Reserve. Now part of that production will be rubber, not the raw material, but that is another thing, that is butyl rubber which we have developed in our own laboratories here. We haven't come to that yet in the discussion, but that is included in that total.

Senator BREWSTER. And that is for tire rubber, the butyl?

Mr. FARISH. It can be used for tire rubber and it can be used for mechanical goods, too. It does not make a good tire compared to the Buna or Neoprene or raw rubber. That is, we are told that, and mind you, we are not compounders and we don't make tires. We have to rely on other people for that.

Senator BREWSTER. What is the present state of the negotiations?

Mr. FARISH. With—

Senator BREWSTER. With the Government.

Mr. FARISH. With us?

Senator BREWSTER. Yes.

Mr. FARISH. The amount signed is about 120,000 tons.

Mr. HOWARD. I think about 100,000 perhaps signed, 100,000 under letter of intent, roughly.

Mr. FARISH. That is as nearly as we can give it.

Senator BREWSTER. Is that raw material or synthetic rubber?

Mr. FARISH. Both, but only 40,000 of the total is synthetic rubber.

Senator BREWSTER. Where you are going to carry the process through.

Mr. FARISH. That is right. That is not the butadiene Buna rubber. That is this other rubber, butyl, b-u-t-y-l, that we have ourselves.

Senator BREWSTER. Under the letters of intent are you proceeding with your materials, getting your fabrication?

Mr. FARISH. No delays.

Senator BREWSTER. You have your necessary priorities?

Mr. FARISH. Yes. We have been assured of priorities on this whole rubber program now.

Senator BREWSTER. There is a difference between an assurance and a fact, we have found. Which is your status now?

Mr. FARISH. Well, we are not actually getting the goods, if that is what you mean, because some of this is still in the blue-print stage, sir.

Senator BREWSTER. But wherever you have needed the materials or were ready to give your orders for machinery, you have had no difficulty about getting your priority rating?

Mr. FARISH. That is correct.

Senator TRUMAN. How soon will you have 40,000 tons of rubber on the market?

Mr. FARISH. You are now talking about the butyl rubber?

Senator TRUMAN. I am talking about rubber. I don't care whether it is Buna or whatever kind. I want to know how soon it will be—of rubber.

Mr. FARISH. May I refer to Mr. Howard?

Mr. HOWARD. The first one-third in November, Senator. The second one third—

Senator BREWSTER (interposing). You mean 1942?

Mr. HOWARD. Yes, sir; the present year. The first unit of that 40,000-ton plant is scheduled for completion in November; the second unit in, I think, March, and the third in April.

Senator TRUMAN. Of 1943?

Mr. HOWARD. 1943; yes, sir.

Senator TRUMAN. So that you will be making 40,000 tons in April of next year?

Mr. HOWARD. Yes, sir; that is correct.

Senator BREWSTER. Beginning to make.

Mr. HOWARD. Yes.

Senator BREWSTER. Do you accept that amendment?

Senator TRUMAN. That is right.

Mr. FARISH. At that capacity.

Senator BREWSTER. Yes.

Mr. CLARK. Mr. Farish, in November 1939 you stated that you wrote the War and Navy Department to the effect that you wanted to get the synthetic rubber program under way. Is that correct?

Mr. FARISH. Correct.

Mr. CLARK. Now, in August 1940 Mr. Howard or yourself attended conferences of the Advisory Commission on Rubber, and at that time you agreed to submit engineering plans for a substantial portion of the proposed 100,000-ton program. Is that correct?

Mr. HOWARD. Yes, sir; I think that is the date. The fact is correct.

Mr. CLARK. The fact, the substance, is correct?

Mr. HOWARD. Yes, sir.

Mr. CLARK. Then you withdrew from the agreement. Is that correct?

Mr. HOWARD. Oh, no, sir. We actually did complete the plans for a 30,000-ton plant on schedule. I think the schedule called for its being completed October 15, and the plans were completed, Mr. Clark.

Mr. CLARK. They were?

Mr. HOWARD. Yes, sir.

Mr. CLARK. And the plans were submitted?

Mr. HOWARD. Yes; so far as I remember.

Mr. FARISH. I would like to read this into the record. Mr. Chairman, may I read into the record right now just a short statement of the negotiations?

The CHAIRMAN. Yes, sir.

Mr. FARISH. "Everyone concerned with the national defense angle to synthetic rubber recognized from the beginning that private capital could not provide an adequate supply. Early in 1939 when Standard first started to bring the synthetic situation to the attention of the Government it found that there was no agency having the necessary authority and funds to sponsor a Government program. For a year and a half, from January '39 to June 1940, Standard discussed its rubber plans and made its suggestions concerning rubber to the Army and Navy Munitions Board. This Government agency was actively concerned about the rubber situation and did everything within its authority to encourage production, but it lacked any effective authority or funds with which to accomplish anything in the rubber field.

"In June 1940 to October 1940 a committee of the Advisory Commission to the Council of National Defense was the Government agency to consider and promote

synthetic rubber. This committee soon found that it could only make suggestions which no one was authorized to carry out, and so in the fall of 1940 the responsibility was turned over to Mr. Emil Schram, president of the Reconstruction Finance Corporation. This agency worked upon the rubber plans with Standard and other companies, which led to the completion of a definite program, including the submission of plant proposals to the Government in January 1941.

"Those plans called for 75 percent of the capital to come from the Government and 25 percent from industry. They were held in a stage of suspended animation by RFC for several months due, possibly, to a desire to save the taxpayers' money. Standard never withdrew its proposal to share in the capital outlay. In March 1941, the RFC and the OPM, which had by that time come into existence, revived the program. Finally on June 22, 1941, Standard was authorized to go ahead with its part of a new and larger program financed largely by Defense Plant Corporation.

"During this two-year-and-a-half period, Standard had to deal with many successive individuals and groups in the Government, and this situation, through no fault of any individual concerned, was necessarily a slow process. We were able to build and put into operation our smaller commercial plants before even starting construction of a large Government plant."

Mr. CLARK. I will again ask the same question of Mr. Howard in order to get the record straight. On August 8, 1940 (and that is the date that we have secured from the record), the Standard Oil Company, through its representatives, agreed to submit engineering plans for a substantial portion of the 100,000-ton program as concurred in by the various representatives at that meeting. That was to be submitted on October 8, 1940. Were they submitted?

Mr. HOWARD. To the best of my recollection, they were. I would be glad to check the record.

Mr. CLARK. Mr. Farish states that all they had was the power of suggestion—while it would be better to say they had the power of recommendation. Were any plans submitted in October 1940?

Mr. HOWARD. Yes, I think the facts are that rough plans were submitted about October 15, 1940.

Mr. CLARK. The record shows that no plans were submitted and the Standard Oil Company withdrew from all negotiations. Is that a correct statement as of that time?

Mr. HOWARD. I do not believe it is, Mr. Clark.

Mr. CLARK. You are in doubt?

Mr. HOWARD. Well, I should like to check the exact status of the record on that point. I will be glad to do it.

Mr. FARISH. I would like to ask Mr. Howard a question for the record. Did we ever withdraw any negotiations at any time?

Mr. HOWARD. Not that I know of.

Mr. CLARK. The record shows very clearly that Standard Oil did not submit the engineering plans as promised.

The CHAIRMAN. That is the record from the Advisory Board.

Mr. CLARK. That is right.

Mr. FARISH. May we check that, Mr. Clark?

Mr. CLARK. Surely.

Mr. FARISH. We would be delighted to.

Mr. HOWARD. We certainly had the impression that we not only did everything they asked but asked them to do more.

The CHAIRMAN. You did go ahead and build a plant with your own money.

Mr. FARISH. Yes.

The CHAIRMAN. That is better than plans, if I may say so.

Mr. FARISH. We think so.

Mr. HOWARD. Our attitude is perhaps best shown on this matter of plans in this way: In July, we were asked by the RFC to prepare plans under a letter of intent, for a 15,000-ton butadiene plant—that is July of 1941. That work was suspended by the RFC, by their instructions, a little bit later. Despite that suspension, we continued at our own expense on those plans in order that there might be no delay, and when the war broke out in the Pacific and we were ordered to resume work on the plans, the plans were virtually complete. If there had been anything in October of the type you mentioned, it certainly is a misunderstanding. I think the attitude of the company is best exhibited by the other matter.

Mr. CLARK. Mr. Farish, I take it you didn't have a great deal of faith in the Advisory Commission when you said they had only the power of suggestion.

Mr. FARISH. Did I say the Advisory Commission only had the power of suggestion?

Mr. CLARK. That is what I understood you to have testified. Was that the reason why you revived your negotiations with Mr. Emil Schram.

Mr. FARISH. Well, apparently that is what we thought; yes. That is what our records show.

Mr. CLARK. And was that the basis for not submitting the plans?

Mr. FARISH. I don't think that can be true, Mr. Clark. We will have to check that. I can't admit that we haven't carried out faithfully any obligation we undertook to anybody in connection with this.

Mr. CLARK. Senator Herring is anxious to get this matter straight for the record.

Mr. FARISH. And so are we.

The CHAIRMAN. Do you have anything further to suggest?

Senator CONNALLY. Let me ask him a question. Mr. Farish, what at present is being done with this 30,000-ton plant? Are you really making synthetic rubber or are you just holding it ready to utilize it when and if it is necessary?

Mr. FARISH. That proposal at that time, Senator, was changed over and finally evolved into the present program that these gentlemen described to you this morning, which was a cooperative program with the Rubber Reserve, in which some of the oil companies were to make some of the raw material and some of the chemical companies were to make some of the raw material.

Senator CONNALLY. Is that plant still intact?

Mr. FARISH. Those plans?

Senator CONNALLY. The plant. Didn't you say you went ahead and built a plant for 30,000?

Mr. FARISH. Not for 30,000 tons. No; our commercial plant was smaller than that.

Senator CONNALLY. Whatever the size, it is still in operation?

Mr. FARISH. Oh, yes, it is in operation; yes, sir.

Senator CONNALLY. That is what I meant by still available; whatever facilities you have created are still available?

Mr. FARISH. Oh, certainly, certainly.

Senator CONNALLY. That is what I assumed—sort of guinea pigs, as it were. If you can make a little, you can make a lot.

Mr. FARISH. That is what we think. We thought it was a pilot plant that would prove the process.

Senator CONNALLY. That is right.

Mr. CLARK. I would like to have this Jasco arrangement clarified. Under this arrangement did Standard Oil have any agreement whatsoever with I. G. Farben to turn over any patents or processes or "know how" to I. G. Farben?

Mr. FARISH. About anything?

Mr. CLARK. Any new discoveries at that time or in the future.

Mr. FARISH. I am not familiar enough to answer that. Mr. Howard will have to try to answer it.

Mr. HOWARD. Under the Jasco contract, Mr. Clark, Standard Oil had to offer to Jasco for the world outside of Germany, any processes which Standard invented for producing chemical products from oil or gas raw materials. Processes brought into Jasco in that way would have been handled as follows: Standard Oil would have had five-eighths of the beneficial interest in the process and the control of the exploitation of it. Is that clear, Mr. Clark?

Mr. CLARK. Yes, sir. Thank you.

The CHAIRMAN. Unless you have something else—

Senator CONNALLY. Unless Mr. Farish has some other matter he wants to submit. I think he ought to have an opportunity to say anything he wants to say.

Mr. FARISH. I would like to make just one comment, gentlemen, on the general objective, as I understand it, that this subcommittee is dealing with, and that is, they are trying to find out, has there been any delay in the production of synthetic rubber in the United States? If there has been any delay, whose fault is it or who caused the delay, or what has caused it? I want simply to reiterate the statement I made a while ago, that I can't find any logic or reason why any rubber company or any oil company would be concerned with or party to any delay. There has been some reluctance, and I might say some slow movement on the part of Government authorities.



Senator TRUMAN. What this committee as a whole is after is rubber, just as we were after aluminum, as we were after copper, and if there is any delay, if there are any bottlenecks or if anybody is holding it up, or if anybody has held it up, we want to know why and go on from here and get rubber. That is what we want; we want rubber; that is what everybody wants.

Mr. FARISH. It seems to me, Senator, we are making any possible contribution to that end.

Senator TRUMAN. That is what we wanted to find out.

Mr. FARISH. In this statement you asked me if I had anything further to say. All I would say is that I can't find any oil company or any rubber company that has delayed it, or is interested in delaying it, or has any interest in doing so. But my thinking apparatus tells me that there has been, perhaps, some influence at work that has caused some delay.

Senator TRUMAN. We want to find out what that influence is and see if we can stop it.

Mr. FARISH. I don't know what has caused that delay. There has been some reluctance on the part of Government to push this question and sink the money in it. They may not have thought anything was going to happen to us in our supplies from the Far East. They may not have taken the threat of a shortage seriously, or they may have been influenced by other considerations. I don't know what they were, but all I am trying to say is, with my approach and my own thinking, I can't find any oil company or any rubber company that has contributed to the delay.

The CHAIRMAN. Mr. Farish, looking back now, in view of the need that we have for this rubber, do you think that your attitude or your policy or your royalties or your control have really contributed to a shortage of synthetic rubber at this time, or has it not?

Mr. FARISH. Well, Senator, the answer, I think, is obvious. I think every effort that we have made has all been on the side of getting rubber and getting synthetic rubber production under way in this country. The minute, I might say the day, our people got back from Europe after we got control of these German patents, we approached the Government: How can we get synthetic rubber started in this country? We can't do it commercially because the cost is prohibitive. With raw rubber covering the range from 3 cents to \$1.25, and being able to produce raw rubber at a cost of less than 10 cents, a commercial operation to produce synthetic rubber at 25 or 30 cents is simply impossible. The public's money can't go into that operation. It must be a government-supported operation.

Senator BREWSTER. In connection with the development that is now in process, you are carrying out the operation to create these facilities for the Government?

Mr. FARISH. Yes, sir.

Senator BREWSTER. And for the Government's account?

Mr. FARISH. Yes, sir.

Senator BREWSTER. Are you receiving options for acquisition following the war?

Mr. FARISH. Options for acquisition?

Senator BREWSTER. Of the facilities.

Mr. FARISH. No.

Senator BREWSTER. Those will be Government-owned facilities?

Mr. FARISH. They will be Government-owned facilities, and as I understand it, Senator, they will be subject to sale by the Government at that time.

Senator BREWSTER. Without any restrictions on the Government?

Mr. FARISH. I understand so. Let me check just a second. Isn't that correct, Frank, that on any of these synthetic processes that we are putting in, that the Government is financing, we have no preferred position in the sale or acquisition of those properties after the war?

Mr. HOWARD. That is correct, sir. I am sorry, the contracts read, I think, according to a standard form as follows: That the lessee of any defense plant (these include these defense plants) has a six months' preferred period for negotiation before the Defense Plant Corporation will sell that plant to anyone else. I believe those are the terms of the contract.

The CHAIRMAN. That is the law, isn't it?

Senator BREWSTER. No; I don't think so. That is the matter of the R. F. C. arrangement.

Mr. FARISH. That is a matter of policy that they have laid down on all of it. That is what I mean by no preferred position. Our position is the same as everyone else's.

Senator BREWSTER. I would say that is preferred. That is, I assume that if the Government decided they would sell this plant for \$100,000,000, it would mean that you would have a preferred status to acquire it.

Mr. HOWARD. We would have a six months' period to negotiate with them before they offered it to others, but there is nothing binding on them as to whether they accept our offer or not.

Senator BREWSTER. Except that when, as and if the Government had determined upon a price for the property, you would have the first opportunity to acquire at that price.

Mr. FARISH. The plant that we built.

Senator BREWSTER. That is right.

Mr. FARISH. What I meant by preferred position, Senator, our position is the same as everybody else's that the Government is dealing with, you see.

Senator BREWSTER. I didn't mean to intimate that. This has been a matter of considerable interest because it may have very great significance following the war. We had this in the aluminum situation, and in that case the Aluminum Company testified that that option would not be a thing to which they would attach great importance. They were ready to eliminate it. Is it a consideration to which you attach considerable importance?

Mr. FARISH. I wouldn't think so, no. I don't think that means much. After all, it just means that you have the first chance to negotiate with them.

Senator BREWSTER. And this would not, of course, affect any rights which you might have under the patent and processes, the matter of royalties of things of that character.

Mr. FARISH. No.

Senator BREWSTER. Assuming someone else acquired these physical properties; whatever your rights were with respect to royalties would persist?

Mr. FARISH. That is correct.

Mr. HOWARD. The Rubber Reserve Company, Senator, has protected its right to dispose of plants by asking obligations on the part of patent owners, if they are ready to license purchasers of such plants.

Senator BREWSTER. At a price to be determined as equitable, or how is that to be determined?

Mr. HOWARD. In some cases the royalty is fixed and in some cases it is left on an equitable basis. You see, they have several types of plants. In some of them the royalty was definitely fixed, and in some others it was left open.

Senator BREWSTER. And do you know how many other oil companies are now concerned with the possible creation of facilities?

Mr. FARISH. No; but there must be a great number, Senator.

Mr. HOWARD. Several large groups of oil companies.

Mr. FARISH. When you cover the range of 100 octane gasoline and butadiene, too, there are probably fifteen—something like that.

Senator BREWSTER. The 200,000 tons, 50 percent of what Mr. Jones had originally contemplated; I think now he has moved his figure up to six hundred or seven hundred thousand tons, but even that is a third interest which would be represented by your company.

Mr. FARISH. Well, part of that is in Canada.

Mr. HOWARD. Yes, sir.

Senator BREWSTER. Isn't that more than your proportion of the oil business?

Mr. HOWARD. Yes, sir.

Mr. FARISH. Yes; that would be more than that. Mind you, Senator, we are not seeking these contracts. We are not begging for them, because it is a great burden on our organization to do it. We have only done what they have asked us to do. As I told Mr. Jones the other morning, we have under consideration now a letter of intent, for instance, on a plant of considerable size to be built in Bayway, New Jersey. I told him if he wanted to move that plant into the interior and cut us out of it, we would welcome it. It is no butter on our bread to build that plant.

Senator BREWSTER. You feel that your organization is under considerable strain now, and responsibility?

Mr. FARISH. We don't feel, we know we are stretched to the limit. Our men are working overtime, and are worn out now, so we are not seeking anything we don't have to have.

Senator CONNALLY. Mr. Farish, I want to develop briefly one other point. You said a while ago that you hadn't found any oil companies or rubber com-

panies that had either delayed or desired to delay the development of this synthetic rubber, is that correct?

Mr. FARISH. That is correct, sir.

Senator CONNALLY. Well, as a matter of fact, would it not have been to the interest of the oil companies and the rubber companies to aid the process rather than to delay it, because it is their oil that makes the rubber, and the rubber companies need the rubber for their enormous trade. I was just wondering if I have that right in my head, that while you can't manufacture commercially in competition with plenty of raw rubber—if you had plenty of raw rubber—with the prospect of the cutting of adequate supplies of raw rubber, it would certainly seem to me that would stimulate a desire of these oil companies and rubber companies to find a place where they could get it, if and when the time came that they had to get it somewhere else, isn't that right?

Mr. FARISH. That is correct, Senator. That is stating the proposition in the affirmative. They have every reason to want to seek it.

Senator CONNALLY. I would think so. I am a layman and know nothing about it, but that would seem to me to be the normal human impulse. On the other hand, I don't know who in the Government you have in mind who might have been reluctant to go into this, but evidently the Government, bearing all the financial strain and the burden of developing these plants, probably stimulated some of that reluctance until they realized the dire need which now faces us. We were hopeful that we wouldn't lose the Dutch East Indies and hopeful that we wouldn't lose Malaya, and hopeful that we wouldn't lose this, but it has become a reality now and we see we have got to do it; isn't that right?

Mr. FARISH. That is correct, Senator. I didn't have anybody in mind, as I clearly stated.

Senator CONNALLY. I didn't mean to imply that you did, but I said whoever, if anyone, did it was probably acting through motives of what they thought were wise and good motives.

Mr. FARISH. But this matter of fostering the production of synthetic rubber, as the record clearly shows, sifted through 3 or 4 or 5 different Government departments. That necessarily causes a delay.

Senator CONNALLY. I want to ask you something else that is really not pertinent to this inquiry, quite. This guayule rubber—do you know anything about guayule rubber?

Mr. FARISH. I don't know anything about it. All I know is what the Agriculture Department published.

Senator CONNALLY. There was a man in my office the other day who had a little lump of it about as big as that, and he said what had happened was, he had just taken the bark off this plant, chewed it, and that produced the rubber; and it did look like rubber. It had resiliency, but it was not as good, no doubt, as the raw rubber, but still it is really rubber.

Mr. FARISH. That is correct, I understand it is, and it is a substitute for raw rubber in a major way, not entirely, but largely.

Senator CONNALLY. Well, this man's idea for producing it, while we can't wait five years to plant it, was that there are almost limitless quantities of this wild plant in Northern Mexico, and if it could be harvested and turned into rubber, that a large amount of it could be secured from that source. That has nothing to do with the synthetic business, but it is a possibility that it could be used for some purposes at least that rubber is now being used for.

Mr. FARISH. I think that is correct.

Senator CONNALLY. If we could get out and gather it in, and get hold of it.

Mr. HOWARD. Mr. Clark, may I try to answer the question you put about the plans of last August?

Mr. CLARK. Certainly, go right ahead.

Mr. HOWARD. I find in the files here a letter of August 9, 1940, from Mr. W. L. Batt, the pertinent paragraph of which reads as follows: "We are turning over to Mr. Schram the plans which we have already received. I suggest that you submit directly to him any further plans or suggestions that you may have. I know he will be glad to discuss any pertinent matters with you and answer any questions that you care to ask."

"May I take this opportunity to thank you on behalf of the Synthetic Rubber Committee for the splendid cooperation which we have received from you and your associates."

Senator TRUMAN. What is the date of that?

Mr. HOWARD. October 9, 1940, Senator. Now, I can't tell from that paragraph whether the plans that we were to prepare had actually been received by Mr. Batt already or whether he was telling us that "I have got part of the plans and am turning them over, and as to the rest of them, you turn those over to Mr. Schram." It was a case of either interpretation. I don't know which is correct.

Mr. CLARK. That clarifies the situation. Thank you very much.

The CHAIRMAN. If there is nothing further, we will adjourn.

(Whereupon, the hearing adjourned at 2:55 p. m.)

#### EXHIBIT No. 482

[Submitted by William La Varre, Chief of American Republics Office, Department of Commerce]

Arnulf Fuhrmann, Gauleiter for Sudamerica, antisemitic propaganda;

Dr. Walter Becker, commerce and trade;

Dr. Otto Klein, industry;

Erich von Ribbentrop, diplomacy;

Julius Holzer, Storm Troop and Volksgemeinschaft;

Rudolf Meissner, Gestapo;

Paul von Bauer, aviation;

Theodore Schumacher, newspapers, magazines, radio;

Dr. Rudolph Paetz, schools;

General Wilhelm Faupel, military, East Coast;

General Hans Kundt, military, West Coast;

Alfred Muller, Argentina;

Edgar von Spiegel, Caribbean;

Arthur Dietrich, propaganda;

Dr. Hans von Cossel, cultural relations.

(1) I. G. FARBENINDUSTRIE'S agents had passes.

(2) Auslands Gestapo had passes.

Karl Ritter.

Kurt Pruefer.

Hans von Cossel (Gestapo for Brazil).

Friedrich Ried.

Wili Gehrike (Bund trooper leader).

Kazuo Kuwajima (Japanese Ambassador to Brazil).

Erich von Ribbentrop (Bund Leader of Colombia).

Arnulf Fuhrmann, Leader.

(Col.) Rudolf Meissner.

Otto Klein (Espionage agent assigned to industrial activities).

Adolph Paez, Storm trooper officer to work through schools.

Otto Langmann, Minister to Uruguay (with 30 "assistants").

Alfredo Muller, "Leader for Argentina" (specialty: Military clubs organization, Reserve corps, "Centro de oficiales de Reserva").

The Former German Prince, S. P. zu Schaumburg, traveling under the name of "Fritz Held." Specializing in "Travel scholarships."

Arthur Dietrich, Propaganda chief (Central America and Mexico).

Theodore Schumacher, Nazi roving "Editor," financier of press relations.

Willem Hammerschmidt, Propaganda Minister for Chile.

Hans Voigt, Chief for German State Railway Bureau, in Chile.

Major Otto von Zippelius, Professor of Military Tactics for propaganda to Chilean Army Schools.

Baron Wilhelm von Schoen, Diplomat (Ambassador to Chile).

Giuseppe Alenolifi, Italian agent ("Minister") for Peru.

Hachiro Arita, Japanese liaison officer, for Peru, with Berlin.

Rudolf Groosman, "Cultural Adviser for South America."

Dr. Walter Becker, Commercial Agent, to operate out of the Rio Embassy. General Wilhelm Faupel, Spanish specialist carrying papers of special assignments directed by Hitler.

Count Alberto Marchetti, Minister to Mexico—Italian Propagandist for Central America.

H. von Schmidt, Propaganda Agent for Uruguay.

Gunther Niefenfuhr, Chief Military Leader for South America—with assistants, General Friederich Wolff and General Otto Kriesche, the latter

carrying papers designating him as General Goering's Military Air Minister for South America.  
General Eberhardt Bonstedt, with documents authorizing him to act as "Military Leader For Central America". (His assistant was Crejack Boyna, diplomatically accredited to the Panama Legation.)  
Franco Baldi, Special representative of Mussolini for Mexico.

#### Chile:

Siemens Schuckert Ltd., Valparaiso, Santiago, Concepcion, Antofagasta.  
Gildemeister & Co., Valparaiso, Santiago, Concepcion, Puntarenas.  
Lange & Co., Ltd., Santiago, Concepcion.  
Ferrostaal G. m. b. h.—Santiago.  
Nissen Fischer-Gebert y Co., Santiago, Concepcion.  
Societe Mannesmann, Tubos, Ltd., Santiago.  
Timmermann & Cia., Santiago, Valparaiso.  
Societe Sautt & Cia., Ltda. Santiago, Valparaiso, Concepcion, Temuco, Puntarenas.  
Sudamericana de Electricidad-A. E. G.-Cia., Santiago.  
Vorwerk & Cia., Valparaiso, Santiago.  
Cia. Fabrica de Panos (& R. Stohrel), Concepcion.  
Radios Telefunken. Santiago, Temuco.

#### Bolivia:

Zeller, Mozer & Cia., Santa Cruz, La Paz.  
Kyllmann, Bauer & Cia., La Paz.  
Elsner & Co., La Paz, Juan.  
Elsner & Cia., La Paz, Bernard.  
Von Bergen & Cia., La Paz.  
Zieriaks, Becker y Cia., La Paz.  
Borgolte (Rudolpho), La Paz.  
Schweitzer & Cia., La Paz.

#### Brazil:

Casa Chimica *Merk* Brazil, S. A., Rio de Janeiro.  
Acos Roechling Bruderus Do Brazil, Ltd., Rio de Janeiro.  
Brasileira de Electricidade Siemens Schuckert Companhia, Rio de Janeiro.  
Soc. Motores Otto Deutz Ltd., Rio de Janeiro.  
Chimica Bayer Ltd., Rio de Janeiro (and other cities).  
A. E. G. Cia.-Sul Americana de Electricidade, Rio de Janeiro.

### EXHIBIT No. 483

[Copy]

#### DEPARTMENT OF COMMERCE ECONOMIC AND TRADE NOTES

#### E. & T. Notes No. 116

RIO DE JANEIRO, BRAZIL, *October 16, 1939.*

Submitted by: A. W. Childs, Assistant Commercial Attaché; (voluntary).  
NEW ROME-RIO DE JANEIRO AIR LINE

On October 13, 1939, there arrived in Rio de Janeiro Colonel Attilio Biseo, *Italian army aviation officer* now functioning as Director of "Ala Littoria," the new Rome-Rio de Janeiro air line.

Colonel Biseo was in charge of a flight of 3 planes (one flown by Bruno Mussolini) which visited Brazil in early 1938. The 3 planes were called the Ratos Verdes (Green Rats).

Col. Biseo is here now to make final arrangements for the inauguration of the new line, which is scheduled for mid-November. The new company will be called Linhas Aereas Transcontinentaes Italianas (L. A. T. I.). En route to Brazil, the ships will call at Rome, Malaga, Villa Cisneiros, Ilha do Sal (Cape Verde), Recife, and Rio de Janeiro.

(Signed) A. W. CHILDS,  
Assistant Commercial Attaché.

AWC:EG

Approved by:

(Signed) WALTER J. DONNELLY,  
Commercial Attaché.

## EXHIBIT No. 484

## SIX MONTHS OF L. A. T. I. OPERATIONS

(December 1, 1940-May 31, 1941)

Lati manifests are now available in sufficient detail and over a sufficiently long period to provide a secure basis for drawing significant conclusions concerning the freight-carrying operations of this air line. Elsewhere evidence of the close relationship of Lati's various South American activities to the problems of Western Hemisphere defense has been examined at considerable length.<sup>1</sup> In the annexed tables (Annex "A" and Annex "C") remarks on the passenger list provide further evidence of this relationship. The following analysis of the freight carried by Lati lends additional support to the view that Lati's operations are directly related to questions of Western Hemisphere security and to the general conduct of the war.

Available records indicate that during the six-month period under consideration Lati planes made 22 westward Atlantic flights and 23 eastward flights. The composition of the aggregate of freight shipments covered by accessible manifests for this period is set forth in the following tables:

*Westward crossings (Dec. 1-May 31)*

	Kilos	Percentage Composition
Books, Maps, etc.....	2,365	32.5%
Chemical & Pharmaceutical Products.....	2,360	32.4%
Films.....	860	11.6%
Electrical Materials.....	660	8.9%
Aviation Equipment.....	314	4.2%
Gold & Silver Objects & Jewellery.....	210	3.2%
Photographic Materials.....	26	0.4%
Medals.....	15	0.3%
Others unclassified.....	578	6.5%
Total freight according to manifests.....	7,418	100.0%

[In pencil: Hitler and his Herr Doctor Funk said gold was useless.]

*Eastward crossings (Dec. 1-May 31)*

	Kilos	Percentage Composition
Mica.....	3,771	79.7%
Semiprecious stones.....	343	7.2%
Pharmaceutical products.....	229	4.9%
Platinum.....	183	3.8%
Diamonds.....	3	.6%
Others unclassified.....	196	3.8%
Total freight according to manifests.....	4,725	100.0%

On crossing to the Western Hemisphere Lati's loads are principally propaganda (e. g., books, films, etc.) and commodities particularly suitable for securing foreign exchange and clearing credits in the Americas (e. g., gold and silver objects, chemicals, electrical materials, etc.). On crossing to Europe, Lati carries cargoes largely composed of compact and essential war materials (e. g., mica, platinum, industrial cutting crystals, etc.).

In case it might be thought that the quantities in the above tables have been made up of haphazard shipments during the period, it should be noted that the composition noted above was maintained almost constantly for individual Lati

<sup>1</sup> Herald Tribune (N. Y.) January 2, 1941; Foreign Affairs Quarterly, January 1941; Fortune Magazine June 1941.

loads throughout the period (see Annex "B" and Annex "D"). Such regularity suggests that the composition of these loads is not determined fortuitously by the response of European and South American exporters to Lati freight rates, but that shipments are controlled in such a manner that the appropriate balance between propaganda and commodities is ensured for each load.<sup>2</sup> A detailed examination of westward and eastward shipments supports this view and indicates some of the definite purposes controlling Lati's freight operations.

### I. WESTWARD SHIPMENTS

As noted above, shipments carried by Lati on the Westward journey fall into two categories:

1. Items primarily of propaganda value.
2. Items primarily of commercial importance.

A third category might be added covering aviation equipment for Lati and Condor. Such equipment facilitates the operations of German and Italian airlines in South America and is, therefore, of considerable importance (some 335 kilos, including "Aviation" equipment, together with "Machine parts" from Lufthansa, Berlin, to Condor). However, since details of the equipment included in such cargoes are not available, the actual importance of these shipments cannot be precisely estimated. Details concerning the first two items, on the other hand, are sufficiently complete for a fairly comprehensive analysis.

#### 1. PROPAGANDA

The films carried by Lati would appear to be principally one- or two-reel shorts for exhibition as only part of a complete cinema program (since most of the shipments ranged from 2 to 6 kilos, whereas the film for a two-hour program weighs approximately 30-40 kilos). Furthermore, the consignor of many of the Italian films is the firm of Cipolli and Zanetti, which specializes almost exclusively in the handling of "news" films. These facts and the fact that the German Ministry of Foreign Affairs is so largely involved in the shipments suggest that the films contain even more concentrated propaganda than one might expect if the shipments consisted of full length films.

The manifests indicate that the films are consigned to widely distributed areas and that the flow of such shipments to these areas is exceptionally regular. The following table indicates the extensive area covered by these films according to their original consignment. It should be noted that the subsequent distribution after the films have been exhibited at the first destination would cover an even wider area, and that the successive exhibitions would multiply the influence of these films far beyond that suggested by the kilogram weights indicated here.

#### *Distribution of Lati film load according to consignments (December 1-May 31)*

[Weights in Kilos]

	Argentina	Brazil	Chile	Mexico	U. S. A.	Total
A. German films:						
1. Consigned to commercial film distributors	102	118	5		130	355
2. Consigned to German Embassies and Legations:						
(a) from Bulow Otten, Berlin	75	40	15	15	55	200
(b) from Ministry of Foreign Affairs, Berlin	26	21			10	57
Total of German Films	(203)	(179)	(20)	(15)	(195)	(612)
B. Italian films (all consigned to film distributors)		105			120	225
Unclassified						23
Grand total	203	284	20	15	315	860

The bulk of the shipments of books originated with Bulow Otten, Berlin, and were consigned to commercial firms and diplomatic representatives throughout

<sup>2</sup> Lati's published freight rate is \$20 per kilogram, and the passenger rate is \$2,600. For many of the commodities carried and for most of the passengers, it could not have been feasible to make these rates "effective." Presumably these prohibitive rates are designed to give Lati a free hand in determining the composition of its loads.

the Americas. Four shipments (to diplomatic representatives in Rio de Janeiro, Buenos Aires, Mexico, and Washington) combined quantities of books and films from this German firm.

An approximate break-down of the total shipment of books according to destinations indicates a widespread distribution similar to that observed in the case of films:

*Distribution of Lati book load according to consignments (December 1-May 31)*

[Weights in Kilos]

	Argentina	Brazil	Chile	Uruguay	Mexico	U. S. A.	Total
A. German books:							
1. To Commercial firms.....	30	24	-----	4	-----	-----	58
2. To German Embassies and Legations (from Bulow Otten, Berlin).....	-----	1,630	375	-----	11	233	2,249
3. To German Embassy from German Embassy, Rome.....	-----	6	-----	-----	-----	-----	6
B. Italian books <sup>1</sup> .....	-----	-----	-----	-----	-----	-----	-----
Unclassified.....	-----	-----	-----	-----	-----	-----	52
Grand total.....	30	1,660	375	4	11	233	2,365

<sup>1</sup> None reported.

The unclassified item in the above table includes an interesting shipment of 21 kilos of hydrographic charts and maps sent by the Ministry of Marine, Rome, to the Italian Naval Attache, Rio.

Also of particular interest in the book shipments are quantities of catalogues from Rheinmetall Borsig, Berlin (24 kilos), and from Skoda Works, Prague (7 kilos), included in the Lati loads. Because of the practical impossibility of transporting commodities ordered from these heavy industry firms across the Atlantic, one might speculate on the reason for taking up valuable cargo space on the air line with such shipments. These catalogues may be intended as commercial propaganda to maintain or establish contact with potential future customers in South America. They may be intended merely to enable former customers to order light repair or replacement parts which might be carried by air (a small shipment of "machine parts"—4.7 kilos—from Rheinmetall Borsig is recorded in the manifests).

(The "Medals" item is of interest. Eight kilos shipped in March were Lati "souvenir" medals. The balance (6.6 kilos) was composed of gold and silver medals which are not described in any detail. It is conceivable that these medals are intended for propaganda purposes of a sort.)

Weight and bulk are good indicators of the importance which the shipper attaches to a commodity carried by air, since obvious limitations necessitate a careful allocation of load and cargo space to best advantage among the various commodities which it is desired to ship. This principle applies particularly in wartime to an airline controlled by the government of a blockaded country which inevitably has a great variety of alternative exports relative to the available space and load allowance. It is, therefore, significant that approximately 45% (by weight) of the total load covered by manifests was given over to bulky items of propaganda.

#### 11. COMMERCIAL ITEMS

Of the commercial items included in the westward manifests, several are especially suitable as sources of foreign exchange or of clearing credits:

(a) Those which are acceptable in themselves as media of exchange (e. g., 110 kilos of gold from the Reichbank to Herm. Ricardo Lodders, Rio; 13 kilos of gold leaf from Manetti, Rome, to Banco Francese Italiano, Rio and Buenos Aires; and 6 kilos from the same consignor to Gottmann, Sao Paulo; and 623 grammes of bank notes from De Corgey, Rome, to Cadaga, Rio).

(b) Those which are compact and hence exceptionally valuable in relation to size and weight (e. g., jewelry, needles, silk neckties, artificial teeth, Swiss



watches, thermometers, perfumes, and similar items which largely comprise the "Other" column of the annexed tables).

(c) Those commodities which Axis countries produce at considerable comparative advantage and which are, therefore, profitable sources of foreign exchange (principally Bayer, Merck, and Transcelere pharmaceuticals; Siemens and Telefunken electrical products and various photographic materials, as indicated in the annexed tables).

Other commercial items are primarily intended as repair and replacement parts for machines previously sold to South American customers (e. g., Fiat, Daimler, Marelli, and Tosk automotive parts and machine parts from Barth, Rheinmetall, Lilleg, and Italcable—these items combined make a total of some 50 kilos).

Unfortunately it is not possible to give even an approximate estimate of the amount of foreign exchange or its equivalent which Lati's operations yield to the Axis powers for the reason that so many factors in the equation are either unknown or indeterminate. From the nature of the cargoes as observed above, it is apparent that Lati's freight shipments make a considerable contribution towards strengthening the Axis exchange position in South America.

In concluding this examination of Lati's westward freight, it may be well to summarize the items carried for U. S. consignees. (This summary includes only those items for which the U. S. A. is indicated as the destination in Lati manifests; doubtless other items consigned to South America subsequently reach the United States):

	Kilos
Films (as indicated above)-----	315.0
Books (as indicated above)-----	233.0
Essences from Dominico Correale Santa Croce, Rome, to Reure Du Pont Inc., New York-----	8.5
From Migone, Milan, to Citrus Oils, New York-----	1.0
Chemical Products from Ministry of Foreign Affairs, Berlin, to the German Embassy, New York-----	1.7
Civets from A. M. Coloniali to Dodge Alcott, C. Matthieu, and Fritzsche Bros., New York-----	41.5
Cameos from Torre del Greco to Credito Italiano, New York-----	3.5
Used Clothing from Rome to New York-----	3.9
Total-----	608.1

# 11. EASTWARD SHIPMENTS

With the exception of some 9% of its cargo, all of Lati's eastward freight consisted of vital war materials. The exceptions were pharmaceutical products and most of the items included in the unclassified group. The pharmaceutical products (4.9% of the total freight) were principally serums, pancreas, and pituitary extracts, and insulin. Even these materials are not unrelated to the medical aspect of warfare. The "Others, unclassified" group (3.8 of the total freight) includes a variety of items not directly related to the actual conduct of the war; kidskins, snakeskins, condensed milk, coffee, corn flour and small shipments of films (from Hans Biester in Buenos Aires—whose firm received most of the German films consigned to Argentina—to Deutsche Wochenchau, Berlin).

These exceptions are in the minority. Over 90% of Lati's Eastward freight for the period consisted entirely of essential war materials. More than four short tons of mica (so essential for the production and operation of radio and other electrical equipment) were carried to Europe by Lati. Diamonds and other crystals (necessary for accurate cutting and boring operations in armament manufacture) constituted over one-third of a ton. Platinum (which has such a variety of uses in electrical equipment and in the production of such important materials for the explosives industry as sulphuric and nitric acids) made up more than one-fifth of a ton.

An examination of the freight carried on Lati's Westward and Eastward crossings, thus indicates the outlines of Lati's policy. On Westward crossings that policy seems to have two aims: (1) to circulate Axis propaganda in the Americas, and (2) to secure foreign exchange or clearing credits for financing Axis purchases or activities. On Eastward crossings the primary aim is to provide the Axis with light, but essential, war materials.

June 27th, 1941.

## NOTES ON THE ANNEXED TABLES

Annex A—Lati Westward Load According to Rio Telegrams.

Annex B—Lati Westward Load According to Manifests.

Annex C—Lati Eastward Load According to Rio Telegrams.

Annex D—Lati Eastward Load According to Manifests.

Of the accompanying tables, Annex "A" and Annex "C" provide the most complete record of Lati operations covering freight, baggage, mail and passengers,, but not in detail. Annex "B" and "D" provide the details for the freight item, insofar as such details can be derived from available Lati manifests.

It will be noted that the total load covered by the manifests does not equal the total freight load reported by Rio for the same period. The manifests, however, provide an adequate sample of Lati freight for purposes of analysis. Because of the almost standard pattern observed in Lati loads, the incompleteness of the manifests does not affect the validity of conclusions drawn from the evidence presented in the tables.

Since the dates entered in the manifests are not always the dates of Lati's departure or arrival, it has not been possible to determine the exact composition of the load carried by Lati on each flight. The quantities are accurate but the distribution of these quantities over various flights (notified by Rio telegrams) cannot always be determined precisely.

Weights throughout are expressed in Kilograms.

ANNEX A.—*Westward Lati load according to RIO telegrams*

Date	Total load	Freight	Baggage	Mail	Passenger (at 75 kgm. per)	Remarks
24 Nov. 40. ....	1, 253	803		375	75	
2 Dec. 40. ....	1, 479	724	135	320	300	
8 Dec. 40. ....	648	121	15	437	75	
17 Dec. 40. ....	774	304		470		
25 Dec. 40. ....	910	8	240	437	225	
Total for December.	3, 811	1, 157	490	1, 664	600	304 Kilos freight comprise: 78 kilos aviation material for Lati; 225 kilos pharmaceuticals for Bayer.
10 Jan. 41. ....	1, 186	165	60	736	225	
1 Feb. 41. ....	1, 675	400		1, 050	225	
16 Feb. 41. ....	698		73	400	225	"I-Buen" new Lati plane began operations on this run. Passenger list includes Hungarian Minister Horthy.
21 Feb. 41. ....	938	374	42	522		
28 Feb. 41. ....	1, 395		391	854	150	
Total for February.	4, 706	774	506	2, 826	600	
7 Mar. 41. ....	759	70	125	414	150	
9 Mar. 41. ....	1, 188	906		282		
19 Mar. 41. ....	1, 180	652	32	421	75	
28 Mar. 41. ....	1, 174	712	50	412		
Total for March.	4, 301	2, 340	207	1, 529	225	
2 Apr. 41. ....	198	57	22	44	75	
9 Apr. 41. ....	716	247	45	349	75	Only passenger is Carlo Zampari, new Italian Naval Attache for Rio.
15 Apr. 41. ....	810	494		316		
24 Apr. 41. ....	1, 312	740	39	458	75	
28 Apr. 41. ....	783	274	108	326	75	
Total for April.	3, 819	1, 812	214	1, 493	300	
5 May 41. ....	1, 397	546	138	563	150	
16 May 41. ....	576	570		6		Only passenger, Maria Elander, journalist from Rome.
29 May 41. ....	729	237	33	459		The passenger list for the period covered by this table includes 30 adults, principally Italian and German diplomats, diplomatic couriers, engineers, and one journalist.
27 May 41. ....	767		60	632	75	
Total May.	3, 469	1, 353	231	1, 660	225	
Grand total Dec. 1st to May 31st.	22, 545 21, 292	8, 404 7, 601	1, 708 1, 708	10, 238 9, 908	2, 250 2, 175	

## ANNEX B.—Westward Lati load according to manifests

Date	Total Load	Films	Books, Maps, etc.	Medals	Other Gold & Silver Objects & Jewelry	Electrical Materials	Chemical & Pharm. Products	Photographic Materials	Aviation Equipment	Other
Sept-Oct.....		1104.0					2,545.10		85.0	(?)
3 Dec 40.....	32.0								32.0	
21 Dec 40.....	71.6	33.6	11.4		9.7		12.3			4.6
Total Dec.....	103.6	33.6	11.4		9.7		12.3		32.0	4.6
6 Jan 41.....	16.8	16.8								
9 Jan 41.....	130.2		13.1	2.5	18.9	5.3	69.2	21.2		
23 Jan 41.....	34.6					34.6				
Total Jan.....	181.6	16.8	13.1	2.5	18.9	39.9	69.2	21.2		
3 Feb 41.....	309.9	22.5			4		168.6		1.8	2116.6
13 Feb 41.....	130.9		2.2		24.9	44.2	48.4			11.2
14 Feb 41.....	202.3		13.3			51.0	114.8		11.4	11.8
20 Feb 41.....	41.1									341.4
21 Feb 41.....	247.1		39.5	1.0	20.4	9.1	165.4	3.0		8.4
22 Feb 41.....	707.4	262.7	17.7		1.0	7.8	206.5	1.3		210.4
28 Feb 41.....	123.3	103.3					20.0			
Total Feb.....	1,762.3	388.5	72.7	1.0	46.7	112.4	723.7	4.3	13.2	399.8
18 Mch 41.....	727.7		9.5		12.2	27.3	579.3		56.5	42.9
27 Mch 41.....	691.3	43.3	5.8	8.0	15.9	114.2	481.8		21.4	.9
Total Mch.....	1,419.0	43.3	15.3	8.0	28.1	141.5	1,061.1		77.9	43.8
8 Apr 41.....	317.5	75.2	115.0				117.0			10.3
10 Apr 41.....	617.5	79.5	289.2		110.0		126.8			12.0
15 Apr 41.....	278.2		244.1						34.1	
23 Apr 41.....	798.4	9.9	735.3		1.0	12.3	24.9			15.0
28 Apr 41.....	151.1	12.1					5.2		136.8	
Total Apr.....	2,165.7	176.7	1,383.6		111.0	12.3	273.9		170.9	37.3
2 May 41.....	97.7	33.3	6.2	1.2		27.8	6.0			23.2
4 May 41.....	379.4		167.7		17.1	110.0	62.0			22.6
15 May 41.....	671.6	16.3	561.8	1.9	3.7	14.8	28.6			44.5
16 May 41.....	85.7	80.2			3.8					1.7
22 May 41.....	294.1	71.5	133.2		1.0	2.4	65.2		20.1	.7
28 May 41.....	257.0					199.0	58.0			
Total May.....	1,785.5	201.3	888.9	3.1	25.6	354.0	219.8		20.1	92.7
Grand total.....	7,417.7	964.2	2,365.0	14.6	240.0	660.1	4,905.0	25.5	399.1	578.2
Dec. 1st to May 31st.....	7,417.7	860.2	2,365.0	14.6	240.0	660.1	2,300.0	25.5	314.1	578.2

<sup>1</sup> Inc. photog. materials.

<sup>2</sup> Diplomatic Effects.

<sup>3</sup> Civets.

25th June 1941.

ANNEX C.—*Eastward Lati load according to RIO telegrams*

Date	Total Load	Freight	Baggage	Mail	Passengers at 75 Kilos per passenger	Remarks
20 Oct. 40.....	1,050	-----	-----	-----	1,050	Of the 14 passengers on Oct. 20th, 11 were airmen. The freight item for Nov. 30th included 153 ozs. of Palladium, 15 ozs. of Iridium, and 15 ozs. of Rhodium for Germany.
22 Nov. 40.....	1,002	381	240	381	-----	
30 Nov. 40.....	718	268	-----	-----	450	
Total for November.....	1,720	649	240	381	450	
6 Dec. 40.....	1,497	428	149	470	450	
13 Dec. 40.....	845	10	101	584	150	Lost at sea Jan. 15th.
20 Dec. 40.....	738	96	-----	642	-----	
28 Dec. 40.....	470	24	64	382	-----	
Total for December.....	3,550	558	314	2,078	600	
3 Jan. 41.....	601	269	-----	332	-----	
11 Jan. 41.....	1,315	691	109	365	150	Details of cargo not known.
Total for January.....	1,916	960	109	697	150	
11 Feb. 41.....	-----	-----	-----	-----	-----	
17 Feb. 41.....	691	99	-----	592	-----	
22 Feb. 41.....	471	85	22	364	-----	
Total for February.....	1,162	184	22	956	-----	Five adults and one child.
1 Mar. 41.....	977	491	67	269	156	
8 Mar. 41.....	887	298	125	314	150	
14 Mar. 41.....	1,188	233	121	429	375	
21 Mar. 41.....	485	-----	-----	335	150	
29 Mar. 41.....	1,507	535	189	370	412.5	The passenger list for the period covered by the tables included 57 adult passengers principally German and Italian diplomats, couriers, and airmen, one Chilean and one Brazilian (accompanied by child) appear in the list.
Total for March.....	5,044	1,587	502	1,717	1,237.5	
4 Apr. 41.....	437	247	59	56	75	
13 Apr. 41.....	598	90	47	356	75	
18 Apr. 41.....	1,010	393	127	310	150	
26 Apr. 41.....	999	472	45	332	150	The passenger list for the period covered by the tables included 57 adult passengers principally German and Italian diplomats, couriers, and airmen, one Chilean and one Brazilian (accompanied by child) appear in the list.
Total for April.....	3,014	1,202	278	1,084	450	
2 May 41.....	909	620	17	272	-----	
9 May 41.....	1,066	267	163	411	225	
17 May 41.....	579	136	-----	368	75	
23 May 41.....	668	245	25	323	75	The passenger list for the period covered by the tables included 57 adult passengers principally German and Italian diplomats, couriers, and airmen, one Chilean and one Brazilian (accompanied by child) appear in the list.
30 May 41.....	817	488	11	318	-----	
Total for May.....	4,039	1,756	216	1,692	375	
Grand total.....	20,415	6,896	1,681	8,605	4,312.5	
Total for Dec. 1st to May 31st.....	18,725	6,247	1,441	8,224	2,812.5	

ANNEX D.—*Eastward Lati load according to manifests*

Date	Total Load	Mica	Diamonds	Other Stones	Pharmaceutical Products	Platinum	Other
Aug. 29 to Sept. 27 (6 trips) ..	(?)	-----	.111	(\$76,000)	-----	-----	-----
October (4 trips) .....	969.00	-----	.844	125.0	-----	-----	-----
8 Nov. 40 .....	257.92	216.0	.020	38.1	3.8	-----	-----
15 Nov. 40 .....	32.20	-----	.195	32.0	-----	-----	-----
22 Nov. 40 .....	11.50	-----	.159	4.0	6.9	-----	.4
31 Nov. 40 .....	71.37	-----	.070	43.8	-----	20.6	6.9
Total for November .....	371.99	216.0	.444	117.9	10.7	20.6	7.3
6 Dec. 40 .....	56.26	-----	.164	44.3	3.7	8.1	-----
13 Dec. 40 .....	49.63	-----	.194	48.1	-----	-----	1.3
20 Dec. 40 .....	29.61	-----	.105	29.5	-----	-----	-----
28 Dec. 40 .....	29.10	-----	-----	29.1	-----	-----	-----
Total for December .....	164.60	-----	.463	151.0	3.7	8.1	1.3
3 Jan. 41 .....	1,003.10	935.4	-----	61.8	3.0	-----	2.9
10 Jan. 41 .....	799.40	635.8	-----	-----	9.3	10.4	143.9
17 Jan. 41 .....	51.37	-----	.265	51.1	-----	-----	-----
24 Jan. 41 .....	15.56	-----	.063	-----	-----	15.5	-----
31 Jan. 41 .....	13.50	-----	.100	-----	1.1	12.3	-----
Total for January .....	1,882.93	1,571.2	.428	112.9	13.4	38.2	146.8
11 Feb. 41 .....	39.41	-----	.172	23.9	-----	15.3	.1
17 Feb. 41 .....	525.11	520.5	.808	-----	.8	-----	3.0
22 Feb. 41 .....	37.40	-----	-----	37.4	-----	-----	-----
Total for February .....	601.92	520.5	.980	61.3	.8	15.3	3.1
1 Mar. 41 .....	12.46	-----	.029	7.3	-----	-----	5.1
8 Mar. 41 .....	9.60	-----	-----	4.2	-----	-----	5.4
14 Mar. 41 .....	12.00	-----	.103	-----	-----	11.9	-----
21 Mar. 41 .....	323.70	312.0	-----	-----	10.7	-----	1.0
29 Mar. 41 .....	23.65	-----	.048	6.3	-----	15.2	2.1
Total for March .....	381.41	312.0	.210	17.8	10.7	27.1	8.5
4 Apr. 41 .....	35.0	-----	.140	-----	30.8	-----	4.1
13 Apr. 41 .....	26.5	-----	-----	-----	5.2	20.5	.8
18 Apr. 41 .....	339.1	339.0	.034	-----	-----	-----	-----
26 Apr. 41 .....	206.1	200.0	.110	-----	6.0	-----	-----
Total for April .....	606.7	539.0	.284	-----	42.0	20.5	4.9
2 May 41 .....	316.2	305.0	.343	-----	7.9	-----	3.0
9 May 41 .....	61.6	2.9	.136	-----	12.0	43.0	3.6
17 May 41 .....	22.8	-----	.059	-----	13.9	7.8	1.0
23 May 41 .....	551.1	416.0	.105	-----	111.0	23.0	1.0
30 May 41 .....	140.7	104.0	.046	-----	14.0	-----	22.6
Total for May .....	1,052.4	827.9	.689	-----	158.8	73.8	31.2
Grand total .....	6,070.95	3,986.6	4.453	{ <sup>1</sup> 585.9 <sup>2</sup> \$76,000 }	240.1	203.6	203.1
Dec. 1st to May 31st .....	4,724.96	3,770.6	3.054	343.0	229.4	183.0	195.8

<sup>1</sup> Plus.

<sup>2</sup> Value.

"EXHIBIT No. 485" appears in full in the text on pp. 4518-4519

## EXHIBIT No. 486

Immediate Release

RFC-1597

THE SECRETARY OF COMMERCE,  
Washington, April 7, 1942.

\* \* \* \* \*

MARCH 26, 1942.

HON. HARRY S. TRUMAN,

*Special Committee Investigating the National Defense Program,  
United States Senate, Washington, D. C.*

DEAR SENATOR: I enclose herewith answers to the questions sent by Mr. Hugh Fulton, General Counsel of your Committee, to the General Counsel of the R. F. C. with regard to the rubber situation.

Sincerely yours,

(Signed) JESSE H. JONES,  
*Secretary of Commerce.*

1. Why did the figures of the rubber-cotton barter stock pile decline from 90,343 tons in August, to 83,203 in September 1941?

There was no decline. Rubber Reserve Company purchased 90,503 tons of barter rubber from Commodity Credit Corporation, which it received in exchange for cotton.

2. Why was the present rate of the base quota not raised to 120% until November 1941?

The International Rubber Regulation Committee controls the amount of rubber that may be produced for export. The basic quotas established by the Committee for the years 1938 through 1942 provide for production of the following tonnages: 1938, 1,335,250 tons; 1939, 1,519,000 tons; 1940, 1,541,550 tons; 1941, 1,554,700 tons; and 1942, 1,563,000 tons. In addition to these basic quotas, the Committee fixes, from time to time, the percentages of the basic quota which may be exported during any certain quarter. The percentages for the years 1938 through 1941 averaged as follows: 1938, 55%; 1939, 58¾%; 1940, 83¾%; and 1941, 105%. From the date of its creation, the officials of the Rubber Reserve Company and the Federal Loan Administrator were constantly in communication with the Committee, urging upon it the necessity for increases in the quotas established. As a result of this insistence the percentages available for export were increased steadily. From the first quarter of 1940 through the fourth quarter of 1941, the percentages were respectively: 80, 80, 85, and 90, on a basic quota of 1,519,000 tons and 100, 100, 100, and 120, on a basic quota of 1,541,550 tons, respectively.

3. How did the Rubber Reserve Company arrange for buying rubber up to July 1941?

We contracted with the International Rubber Regulation Committee to be a ready buyer of all rubber produced that could be exported to the United States that was not bought by the rubber industry in the United States. Actual purchases of rubber have been made through a Buying Committee comprised of a Chairman and 5 rubber buyers of long experience with the industry. These men served both the rubber companies and the Rubber Reserve Company, receiving from the Rubber Reserve Company neither compensation nor reimbursement of any expenses incurred. While the Buying Committee was established as a temporary organization, its operations were so satisfactory that the Rubber Reserve Company continued to use its services. The Buying Committee has been in daily contact with the principal rubber markets of the world and has made its purchases in accordance with policies established from time to time by the Rubber Reserve Company.

4. What were the initial difficulties in 1940 that kept down the government reserve stocks (aside from the rubber-cotton barter) to 40,000 tons at the end of 1940, although the Rubber Reserve had been working for six months previously and had made arrangements for 150,000 tons by the end of 1940?

The demands upon the market in the fall of 1940 were unusually heavy. The British were buying large quantities of high-grade rubber to fulfill their barter

obligation to the United States. The industry in the United States was increasing its consumption and, consequently, its imports. (At the end of 1939 manufacturers had 90,500 tons on hand and at the end of 1940, 143,569 tons.) Great Britain, Canada, and other areas of the British Empire, together with Russia, were purchasing in abnormal quantities for both consumption and stock-pile purposes.

5. How much rubber came in to dealers and manufacturers after the Rubber Reserve took over all buying in July 1941?

The information requested is not available to the Rubber Reserve Company. Only such rubber was imported by dealers and manufacturers as was covered by contracts executed prior to June 23, 1941.

6. Why was rubber shipped mainly to New York instead of San Francisco and other ports which would have freed more ships and shortened the length of time afloat?

Neither R. F. C. nor the Rubber Reserve Company has such control, through statutory authority or otherwise, of any marine shipping facilities as would enable it to prescribe the routing of any vessels. Either through necessity or because of the advisability of such action, a considerable portion of the rubber shipped from the Far East was not transported in American bottoms. We had no control of the routings of foreign vessels.

As the allied nations involved in war, particularly the British and the Dutch, found it necessary to divert ships normally serving in the East Indian trade to military and other purposes, a shortage of shipping space developed. The Rubber Reserve Company took affirmative action by entering into agreements with steamship companies to provide adequate shipping space. Such agreements were approved by the United States Maritime Commission. The Rubber Reserve Company did agree with all shipping lines to receive rubber at West Coast ports. Substantial amounts of rubber were received there as a result of these agreements.

7. By what means did the Rubber Reserve arrange a shipping schedule for the transportation of rubber?

The Rubber Reserve Company advised, almost daily, the Maritime Commission and all interested shipping lines of its requirements.

8. Did the Company have any way of commandeering ships and getting them transferred from not so essential business, such as tapioca, to essential materials, i. e., rubber?

No; neither R. F. C. nor Rubber Reserve Company had any such authority.

9. Is any rubber allocated out of Government stocks at the present time to the big companies which have their own stock piles?

The Rubber Reserve Company does not exercise any jurisdiction in respect to the allocation of rubber to any users. That is the province of the War Production Board, which determines who shall receive rubber and for what purposes. Inasmuch as it has been the sole importer of rubber since June 23, 1941, it has, of course, been necessary for the Company to distribute rubber through sales to the rubber industry. These sales have been made to any manufacturer or other user of rubber, irrespective of its size, financial condition, or any other circumstance, strictly in accordance with the programs of the War Production Board and its predecessor agencies.

10. How soon is the Rubber Reserve going to start buying such finished stocks of rubber goods, and what is the main purpose of this move?

No such program has been or is now contemplated by the Company, nor has the Company been requested to buy up finished stocks of rubber goods.

11. What provisions were made for a latex stock pile?

No provisions have been made for such a stock pile. The use of latex in the manufacture of rubber products is of comparatively recent origin. While its use has been continually expanding, the facilities for its transportation and storage are still rather limited. The provision of extensive storage and transportation facilities for latex would have taken considerable time and necessitated the use of construction materials urgently needed in other phases of the defense program. It is very difficult to store latex over a long period because of its

tendency to coagulate, latex being a liquid, and because of the deterioration which results from various chemical reactions. Liquid latex is handled by a small number of importers whose storage and transportation facilities have proven ample for all available supplies.

12. Did the price arrangement interfere at any time with the acquisition of the stock pile?

No; we agreed to be a ready buyer of rubber at a price range stipulated in the agreement, which was entirely satisfactory to the International Rubber Regulation Committee.

13. Were the Dutch and British reluctant to release stocks and raise percentages of the base quotas, and why?

I could not say they were reluctant to release stocks sufficient to provide the United States with a reasonable stock pile, but apparently they did not want the quotas increased to such an extent that the post-war market would be seriously affected.

14. What are the percentages of the different grades of rubber in the Government's stock pile at the present and in 1940?

The tonnages of the various grades of rubber in the Rubber Reserve Company's stock piles as of December 31, 1940, and March 20, 1942, are as follows:

Grades	Long tons	
	Dec. 31, 1940	Mar. 20, 1942
Ribbed smoked sheets:		
#1X .....	7,547	64,315
#1 .....	4,990	42,523
#2 .....	4,432	37,768
#3 .....	5,608	47,792
#4 .....	3,653	31,131
#5 .....	791	6,739
Thick latex crepes:		
#1X .....	438	3,729
#1 .....	414	3,524
#2 .....	132	1,129
Thin latex crepes:		
#1X .....	855	7,287
#1 .....	799	6,808
#2 .....	112	958
Brown crepes (European estates):		
1-X Thick .....	369	3,147
2-X Thick .....	132	1,129
3-X Thick .....	64	547
1-X Thin .....	277	2,360
2-X Thin .....	365	3,113
3-X Thin .....	16	137
Remilled crepes:		
#1 Thick .....	92	787
#2 Thick .....	1,064	9,066
#3 Thick .....	2,810	23,947
#1 Thick .....	586	4,995
#1 Thin .....	277	2,360
#2 Thin .....	2,144	18,268
#3 Thin .....	377	3,216
#4 Thin .....	671	5,713
#1 Roll brown .....	1,128	9,613
Total .....	40,143	342,101

15 and 16. Were large stocks of rubber in ports of the middle east on December 7, 1941? How much of this rubber was gotten out?

Although a substantial amount of rubber was awaiting shipment on November 30, 1941, practically all of this rubber was shipped prior to December 31, 1941. Since December 7, 1941, 187,486 tons have been shipped to this country, some of which is still afloat.

17. How much was left behind?

Very little, if any.



# 18. What is the present rate of decline in industry stocks?

We do not know, but our stock pile of rubber has increased 87,045 tons since December 7th.

19. From time to time, goals for the stock pile have been set, what have these goals been?

All we could obtain.

# 20. What shipments were sent to Japan from 1939 on, by the British and Dutch?

Importations of rubber by the Empire of Japan, such importations coming largely from the East Indies, aggregated 42,300 tons for the year 1939. For the year 1940, no figures are available on the exports from Malaya to Japan, and the only figures available on exports from the Netherlands East Indies indicate that 27,497 tons were exported to Japan, including Korea and Darien. No information is available for the year 1941. The figures submitted are taken from compilations published by the International Rubber Regulation Committee, a reliable source of information. This tonnage is to be contrasted with 256,000 tons imported by the Continent of Europe in 1939, 122,700 tons by the United Kingdom, and 592,000 tons by the United States. The total importations of rubber for the year 1939 by all countries, aggregated 1,101,400 tons.

# 21. What was the position of the Army and Navy as to the possibility of losing control over the Pacific and the necessity for a stock pile?

Neither of these Departments evidenced any dissatisfaction with, or tendered any suggestions with respect to, the rubber procurement program.

## SYNTHETIC RUBBER

# 1. For what reasons was the goal of 100,000 tons emergency production capacity in synthetic recommended in October 1940 by the Synthetic Rubber Committee and Manufacturers reduced by the R. F. C. to 40,000 tons, of which only 10,000 was actually to be built, and why were so many months consumed in negotiations?

There is no magic in the figure of 100,000 tons. That figure could only have been an arbitrary figure fixed by Mr. Batt and Mr. Stettinius for experimental purposes. The program Rubber Reserve Company adopted will produce about 70,000 tons and not 10,000 or 40,000 tons as your question would indicate. However, our original program, together with privately owned facilities, will bring the total capacity to approximately 100,000 tons and fulfills the recommendation of Mr. Stettinius and Mr. Batt. Furthermore, neither 70,000 nor 100,000 tons will go very far with the supply of natural rubber cut off. For that reason the total capacity has now been increased to more than 700,000 tons. Respecting the so-called recommendation of the manufacturers, the representatives of the various interested companies have never presented join or uniform proposals.

In any event, the various production capacity figures noted, i. e., 10,000, 40,000, and 100,000 tons, each contemplated little more than an experimental program. While the original capacity of the four plants contracted for by the Defense Plant Corporation was to be 2,500 tons each per annum, the plants were designed with facilities capable of producing a minimum of 10,000 tons each. Actually each of these plants will have a capacity of 15,000 tons.

The time required to negotiate the contracts was due to the number and complexity of questions involved, including the intricate patent situation and the number of companies with which we had to deal, each insisting upon its fair share in the program.

# 2. What was the position of the Army and Navy as to the necessity for synthetic plants?

Neither the War Department nor the Navy Department have made any recommendations to the Rubber Reserve Company or the Federal Loan Administrator respecting the synthetic rubber program.

# 3. Was any extensive survey undertaken by the R. F. C. of the facilities of industry and the technical advances made by industry at the time the synthetic plant proposals were under consideration?

The R. F. C. made no independent survey. It relied upon the National Defense Council and the rubber, oil, and chemical industries.

4. Under the contracts drawn up at present, are all companies concerned making the same kind of rubber, i. e., are all the companies making the identical Buna-S product under the same patents, or is each company making its own modification of the basic type?

All of the contracts entered into between the Rubber Reserve Company and the various rubber manufacturing companies providing for the manufacture of synthetic rubber relate to the so-called "Buna-S" rubber (i. e., rubber of the butadiene-styrene-copolymer type) suitable for the production of tires and tubes. The contract with the Standard Oil Company of Louisiana provides for production of "Butyl" rubber and that with E. I. du Pont de Nemours and Company for "Neoprene." "Butyl" rubber is not as satisfactory as "Buna-S" rubber for tire production, but is adequate for tubes, barrage balloons, insulation, and various mechanical goods. While "Neoprene" is satisfactory for tire use, its cost of production is too high to enable it to compete with the other synthetic rubbers for this purpose. It has peculiar properties, such as imperviousness to oils and certain chemicals, which makes it invaluable for special uses. The manufacture of "Buna-S" rubber will be conducted entirely under patent pooling arrangement whereby the four participating rubber manufacturing companies and the Standard Oil Development Company have cross-licensed each other with respect to any patents they own or control pertaining to the manufacture of "Buna-S" rubber. These patents are available to Rubber Reserve Company.

The "Neoprene" patents are owned or controlled exclusively by the du Pont Company, and the Rubber Reserve Company has made appropriate arrangements for the use of such patents under its contract with that Company. The "Butyl" rubber patents (which, as distinguished from the "Buna-S" patents, are entirely of American origin) are owned or controlled by the Standard Oil Company of New Jersey and its subsidiaries and affiliates, and Rubber Reserve Company has also made appropriate arrangements for the use of these patents.

5. What examination of the costs has been made relative to fixing a fair price for synthetic rubber?

All of the contracts entered into between the Rubber Reserve Company and the manufacturers of synthetic rubber, and most of the contracts entered into with various suppliers of raw materials, provide for compensation on a "cost plus a fixed fee" basis. Consequently, it is not possible accurately to anticipate the cost of production, since it will depend largely upon the costs of labor and materials. The volume of production is, of course, a significant price factor; but the want of any experience with volume production prevents any accurate estimates of the economies which may be effected thereby. Various estimates have been made by each of the participating companies as to the anticipated costs of its particular manufacturing process, and, based upon such estimates, the net price of rubber of the "Buna-S" type will range between 25¢ and 35¢ per pound. My own opinion is that these estimates are too low.

6. Did the President ever send any recommendation to Mr. Jones on the synthetic rubber program?

Mr. Jones discussed the synthetic-rubber program with the President, as he does all extraordinary situations affecting the R. F. C.

7. When were the contracts signed for the four 10,000-ton plants?

The original agreements with the United States Rubber Company and the Firestone Tire and Rubber Company for the construction of plants with a capacity of 2,500 tons per annum were executed on May 20, 1941, and that with the Goodyear Tire and Rubber Company for a plant with the same capacity, on May 15, 1941. The agreements with Firestone and Goodyear were amended under date of July 11, 1941, to provide for a capacity of 10,000 tons each, and that with U. S. Rubber, on July 17, 1941, to provide for a like capacity. The contract with the Hycar Chemical Company for the erection of a 10,000-ton plant was entered into on August 19, 1941.

8. When did construction actually start?

Construction was undertaken on the Goodyear plant in May, on the Firestone plant in July, and on the U. S. Rubber plant in September 1941. Because of a difference in the process to be employed by the Hycar Chemical Company, some further delay was necessitated in the completion of plans and specifications for

its plant and machinery. This delay resulted in difficulties as respects the availability of materials necessary in the construction of the requisite equipment. Consequently, construction was not started on the Hycar plant until February 15, 1942. All of these plants will be in production this year, however: Goodyear before July 1st, Firestone and U. S. Rubber before September 1st, and Hycar before the end of the year, assuming materials are available as required.

The experience resulting from this construction is already greatly facilitating the construction of the expanded program now under way. It is also assumed that less difficulty will be experienced in securing prompt delivery of necessary materials and machinery, both of which factors will accelerate construction of the new plants.

9. What steps has R. F. C. taken to insure a supply of Brazilian and Latin-American Rubber?

The Rubber Reserve Company has entered into a contract with the Brazilian Government for the purchase of the entire exportable surplus of Brazilian rubber for a period of five years, both crude and manufactured. It has agreed to pay the Government a premium on all purchases of crude rubber made available to the United States in excess of 5,000 tons per annum. In addition, Rubber Reserve has set up a fund of \$5,000,000 to be used in expanding the production of wild rubber in Brazil. Rubber Reserve Company is negotiating with Peru, Bolivia, Ecuador, Colombia, Venezuela, Mexico, Nicaragua, and Guatemala for increased production in these countries and for the purchase of their exportable surpluses.

10. What effect did the patent situation have?

The patent situation naturally prolonged the negotiations. When the contracts were signed, United States Rubber Company and Firestone Tire and Rubber Company were to pay Standard Oil Development Company a royalty of 7%, but not over 7½ cents per pound, on all Buna-N rubber and on Buna-S rubber used for other purposes than the manufacture of tires and tubes, with some modifications ranging downward as production increased. The royalty on Buna-S for tires and tubes ranged from 5% down to 3%, depending upon the quantity produced. Only recently was a satisfactory solution worked out for the pooling of all patents, so that all such patents are available to Rubber Reserve Company for the manufacture of Buna-S rubber. The Standard Oil Development Company is to be paid a 1% royalty for five years and a 2% royalty for the next five years, such payments to terminate in 1951.

11. Was the synthetic-rubber program in part dependent on the 100-octane gasoline programs, and if so, were any delays due to action or failure to act by the Office of the Petroleum Coordinator?

The synthetic-rubber program can be developed independently of the 100-octane-gasoline program. However, the same raw materials are being used in both programs and there is an abundant supply of such materials. There were no delays in this program.

#### EXHIBIT No. 487

THE ADVISORY COMMISSION TO THE COUNCIL OF NATIONAL DEFENSE,  
FEDERAL RESERVE BUILDING,  
Washington, D. C., October 23, 1940.

HONORABLE JESSE JONES,  
*Federal Loan Administrator,*  
Washington, D. C.

DEAR MR. JONES: You will find herewith a copy of my report of October 21st to the Defense Commission on the synthetic rubber situation, together with the report of our Chemical Division, which I hope will be useful to you in connection with your studies on the subject.

Please don't hesitate to call upon us if we can be of any further assistance to you in the matter.

With best wishes,  
Sincerely yours,

[Signed] E. R. STETTINIUS, Jr.

Attachments 2

## THE ADVISORY COMMISSION TO THE COUNCIL OF NATIONAL DEFENSE, .

FEDERAL RESERVE BUILDING,  
Washington, D. C., October 21, 1940.

To: The Advisory Commission to the Council of National Defense.

From: E. R. Stettinius, Jr.

Subject: *Synthetic Rubber.*

In its efforts to arrive at valid conclusions on the subject, the Synthetic Rubber Committee surveyed the available data on both crude and synthetic rubber, and conferred with representatives of all the companies known to be interested in the production of synthetic rubber or of the raw materials which are necessary to its production.

The findings of fact which emerged from this study may be briefly summarized:

## 1. Normal annual consumption:

Crude Rubber.....	600,000 long tons
Reclaimed Rubber.....	170,000 long tons

## 2. Estimated annual requirements in the event of an emergency:

Crude Rubber.....	700,000 long tons
Reclaimed Rubber.....	210,000 long tons

3. Stocks of crude rubber in this country and afloat, including the crude rubber contained in finished products and including the government stock-pile, amount to approximately nine or ten months' supply for normal needs.

4. Of the 416,000 tons (in addition to normal industry stocks) which is the present goal for the government stock-pile, 54,000 tons have been delivered in this country and a further 34,000 tons are afloat, as of October 5, 1940.

5. The present capacity of the reclaimed rubber industry is 270,000 tons annually. This could probably be increased to 400,000 tons within six to nine months.

6. With stocks on hand and afloat, with no additional purchases of crude rubber, with increased production of reclaimed rubber, and with civilian conservation, it is estimated that we could function for a period of at least 12 months and perhaps as long as twenty-four months.

7. Production of synthetic rubber is now out of the experimental stage and on a commercial basis on a very small scale.

8. The present capacity for producing synthetic rubber in this country is less than 5,000 tons per year. Present plans call for an increase to approximately 12,000 tons per year by the end of 1940, and for further increases to 20,000 tons at future dates.

9. At the moment, synthetic rubber sells at prices ranging from 50 to 65 cents per pound. It is estimated that, with large-scale commercial production, costs would range from 20 to 30 cents. In other words, there is no immediate probability that synthetic rubber can compete with crude rubber on a price basis.

10. The practical minimum time required for the construction of large-scale plants and for getting them into efficient operation may be estimated at 18 months.

11. It was estimated that the capital outlay for an annual production of 100,000 tons would approximate \$50,000,000.

On the basis of these data, the Committee concluded:

1. That all necessary steps be taken to insure that facilities, of a reasonable capacity, for the production of synthetic rubber be established in this country.

2. That a capacity of 100,000 tons a year is a reasonable goal.

3. That engineering plans for large-scale commercial units designed to provide this total capacity be developed as rapidly as possible.

4. That fabricators of rubber products make every effort to develop their knowledge of the use of synthetic rubber and the techniques of application.

These conclusions were approved in principle by representatives of industry at a meeting called by the Committee on August 7, 1940. On the understanding that efforts would be made to develop the necessary plans for plant financing or for assuring a market for the product, five companies agreed to draw up, at their own expense, preliminary engineering plans for commercial units. The total annual capacity for which such plans were to be developed amounted to 108,800 tons. A few days thereafter, a sixth company expressed its intention of developing similar plans. It was agreed that these preliminary plans would be submitted to the Committee not later than October 7, 1940.

Following the meeting of August 7, representatives of the Committee discussed with officers of the Reconstruction Finance Corporation possible plans of financing. Meetings were arranged between these officers and representatives of the in-

terested companies. It was not apparent to the Committee that marked progress was being made as a result of these conferences. It was evident that some confusion existed, particularly for the industrial concerns, because of the fact that two governmental agencies were involved.

Early in October the Committee agreed to accede to the suggestion of the Reconstruction Finance Corporation that the latter organization assume full responsibility for all future steps, and accordingly turned over those engineering plans which had already been received. While the Reconstruction Finance Corporation now has full responsibility, possibilities of non-governmental solutions must have adequate consideration, with the Reconstruction Finance Corporation properly informed in order that any conflict may be avoided. The committee made this decision even though it was fully aware that a number of important questions, upon which it had been working, remained unresolved. Many of these problems are not of a financial nature; others are only in part financial. The Committee wishes to call attention to some of these problems, and to record its opinion that they should be given the most careful consideration by persons competent to deal with the various aspects involved:

1. There is not one process for producing synthetic rubber, but rather many processes. Similarly, there is not one type of synthetic rubber, but rather a number of types which differ substantially in their properties and applications. The various processes are not settled, but are in a stage of rapid development. These considerations, combined with the fact that large-scale commercial units have not been operated in this country, give rise to a number of questions upon which the opinion of qualified experts is invaluable, if not imperative. For example:

(a) Which type or types of synthetic rubber would be most satisfactory for meeting emergency needs, particularly for tires? Which give most promise for future developments along these lines?

(b) In view of the fact that large-scale plants have not hitherto been engineered, which of the engineering plans are most likely to form the basis for satisfactory performance? Which of these will be the least expensive? Are the various units, for which plans have been submitted, of the appropriate size?

(c) Which of the plans can be most quickly implemented in order to cope with the potential emergency?

(d) Are there uncertainties in the patent situation which would present difficulties in the way of a smooth-working program?

(e) To what extent are technical developments in the industry likely to render obsolete any plants which may be erected now? To what extent, and in what ways, may the emergency program affect these developments, taking into account the present status of the different processes?

(f) What will be the effects of an emergency program upon existing and potential private efforts?

2. In view of the present uneconomic nature of synthetic rubber production in this country, what methods of financing or marketing are best suited to promoting the desired program? More specifically:

(a) Should all of the risk be borne by the Government, or should industry be required to bear a part of the risk?

(b) Should the plan contemplate merely the erection of stand-by plants, or should actual production of large or small tonnages be envisaged?

(c) Should the approach be one of direct financing, in whole or in part, by the Government, or should some method be set up for assuring a market (by subsidy, import license, tax rebate, etc.)?

On most of these questions, the Committee is not yet in full agreement. It should be noted, however, that a large majority favor the establishment of an advisory committee of impartial and competent technical experts to assist in the determination of problems. In any event, the Committee feels that a reasoned decision on these and similar questions is a necessary prerequisite to any successful program.

#### REPORT OF CHEMICAL DIVISION ON SYNTHETIC RUBBER SITUATION

This report is designed to supplement the only previous formal report of the Synthetic Rubber Committee, which was drawn up immediately in advance of the meeting with the potential producers on August 7, 1940, and was designed to be read at that meeting. For this reason the report did not attempt to discuss the information which we had accumulated as to the relative advantages and

disadvantages of the various synthetic rubber processes. Also, it was felt that only by studying the formal proposals and investigating their technical background could accurate and conclusive comparisons be made.

The principal purpose of the committee in calling the above mentioned conference was to make sure that during the time required by Government agencies to decide upon the best method of developing synthetic rubber processes, there would not be undue delay in the development and engineering program, but rather that the time would be utilized to build up actual designs on commercial processes suitable for public or private financing, plus more intensive research on the utilization of the products. This result has been accomplished and it now is up to the government to decide how best to stimulate the taking of the next steps in this important program.

However, in view of the transfer of this problem and the attendant information to the RFC, it seems desirable to summarize very briefly the present technical information regarding the various products and to clarify the present attitude of the committee on various important problems connected with the program. These are as follows:

(1) While 103,000 tons of total synthetic rubber production is less than 15% of the probable wartime needs of crude rubber, and still seems a desirable goal in the light of present uncertainties, the figure is by no means a sacred one, and several factors should certainly be taken into account as possibly modifying this conclusion.

(a) The initial recommendation was for a *total* production of 100,000 tons. Capacity of about 10,000 tons is already in, or just about to come into, operation and at least two other companies have indicated that they plan to build plants of approximately 10,000 tons capacity more or less regardless of the Government program, although they would like to be sure of the Government program before they make the final decision. This leaves not over 70,000 tons capacity which would apparently have to be definitely stimulated by a Government program.

(b) The original recommendation was based on the assumption that private industry would furnish most of the capital and take a substantial part of the risk of the program. The fact that the meeting of potential producers indicated that complete government financing was necessary should certainly cause reconsideration of the objective if industry is not fully enough sold on the desirability of the program to be willing to take part of the risk. This comment, of course, applies to the rubber industry whose whole business would be jeopardized by interruption of supplies, rather than to the oil and chemical industries whose interest in the matter is much more remote.

(c) The information which we have secured indicates that all the processes are today in the stage of rapid development, and that the prospects of further improvement in quality and reduction in costs are excellent. Any plants built today for the sake of insurance against an emergency are pretty certain to be obsolete by the time they are built and this again urges caution in (but does not necessarily preclude) the investment of government funds for the purposes of a vital insurance.

(d) One of the advantages of the committee's program of stimulating work on the design of synthetic rubber plants was the hope that by the end of the sixty-day design period the situation regarding the likelihood of interruption of supplies would be clarified. This expectation has, of course, not been entirely realized. From the viewpoint of the casual observer present prospects are that the likelihood of war with Japan has somewhat increased, but the possibility of Japan's being able to seriously interrupt the supplies has somewhat decreased, providing our naval forces make a serious effort to prevent such interruption. It would appear that before embarking on any comprehensive program an effort should be made to evaluate more definitely what the State and Navy Departments think of the seriousness of the threat to our rubber supplies and this should to some extent influence the magnitude of the program to be undertaken.

(2) While fairly complete government financing of plants was the only method which met with general support at the meeting with the industry, the committee is not at all certain that this is the best method of procedure for the following reasons:

(a) It puts a large responsibility on government representatives to appraise processes which are still largely in the development stage in order not to pro-

note processes which are unsound for one reason or another, or the building of plants which might not actually help substantially in meeting the emergency. In addition to this there are serious patent complications. The government certainly would not want to put its money into building a plant only to become subject to attack for patent infringement. At the same time it would seem undesirable to force any one manufacturer to take licenses from other patent holders which he might not do except on the basis of the government standing the expense. On the whole, it would seem better for patent difficulties to be worked out in the normal processes of trade and without government intervention.

(b) If the plants are to be designed by the companies but built at government expense the tendency will inevitably be to design on a more expensive basis in order to make entirely sure that the plants operate satisfactorily, instead of taking reasonable engineering risks and adopting new and promising alternatives which may not have been 100% demonstrated. The effect of this in the direction of raising estimated costs is apparent from the estimates which we have already had a chance to glance at.

(c) Government financing of certain plants will inevitably tend to discourage private financing of other plants. One large company has already indicated that it would be willing to put substantial private capital into building larger plants if it was reasonably sure that it would not have to meet the excessive competition from government financed plants. This same situation is probably true of other companies which have not definitely taken this position. In any case it seems important for the government to adopt and make public a definite policy as soon as possible so that uncertainty as to the government plans will not result in delaying private enterprise.

(d) Without full figures to back this opinion, the Chemical Division believes that from 50,000 to 70,000 tons of additional synthetic rubber manufacturing capacity would be built by private capital if synthetic rubber were given the benefit of a preferential treatment to the extent of remitting the excise tax on all tires containing, say, 40% or 50% of synthetic rubber, or some such arrangement. This subsidy might be further refined to remit the tax to any tire manufacturer based on a certain factor times the amount of synthetic rubber which it used in tire production, this factor being made small when the price of crude rubber is high and larger when the price of crude rubber drops. This factor could be set up in advance or left to the Tariff Commission to adjust depending on relative costs.

(3) The relative technical merits and demerits of the various processes are complicated, requiring very careful study to make sure that correct conclusions are arrived at, especially since most of the data secured to date has been supplied by interested companies and needs an independent check. It is also unfortunately true that the processes which are today the least developed appear to have in many ways the greatest potentialities for the future. The following paragraphs and tabulations summarize some of the more important points with regard to these products:

NEOPRENE, made by the Dupont Company, is the most fully developed process, having been in a commercial use on an increasing scale for several years. It has commanded a premium price because of its high oil resistance and stability toward oxidation, which made it much more valuable than rubber for certain special uses. Additional plants could be built with complete assurance of successful operation. However, both the capital cost and the operating cost on these plants would be higher than for the other three possible products. Neoprene is much heavier than ordinary rubber which is undesirable for use in tires, and makes it comparatively more expensive than would appear from the price per pound. Its high cost is due largely to the fact that it starts with acetylene now made from calcium carbide which requires a large amount of power. Chlorine also requires power for its production. The competing products start largely from petroleum gases.

BUNA-N, widely used in Germany, is well established for use in tires, and has better oil resistance than ordinary rubber. It is distinctly more difficult to mill than ordinary rubber, and slightly more expensive than Buna-S. We understand that Ameripol, made by the B. F. Goodrich Company, is somewhat similar to Buna-N but made in such a way as to not infringe certain patents. Thus the utility of this product cannot be judged from German experience. In general, it

will, of course, be desirable to thoroughly investigate the proposed product to be made by any of the companies concerned, to be certain that the material would be of real utility for emergency purposes.

BUNA-S has also been used successfully in Germany for tires. It is not particularly oil resistant, but is understood to mill somewhat more readily and to be somewhat cheaper especially if the cost of styrene can be brought down to where it should be in the event of large scale demand. The product would probably not command a premium over ordinary rubber on account of its lack of special properties, but it is probably the cheapest material definitely in sight for the production of tires.

BUTYL rubber is a new and very interesting development of the Standard Oil Company of New Jersey. It might be termed a saturated rubber and is extremely resistant to oxidation or the effect of sunlight. It can not be blended and vulcanized satisfactorily with other rubber and there are some difficulties as yet unsolved to prevent it being considered a definitely satisfactory material for use in tires. On the other hand, it starts with very cheap raw material and can ultimately be made much more cheaply than any other known form of synthetic rubber. The existence of this possibility is one factor which tends to hinder the putting of private capital into the other better developed synthetic possibilities. It is particularly well suited for certain parts of the gas mask.

The attached table summarizes in a rough comparative way the more important properties, advantages, and disadvantages of the four rubbers as far as we have been able to evaluate same to date and indicates the necessity for careful comparative analysis by competent experts before making large investments of government money in any of the processes.

ROBERT E. WILSON.

	1. NEOPRENE	2. BUNA-S	3. BUNA-N (Ameripol)	4. BUTYL
Principal Sponsors .....	Dupont .....	S. O. New Jersey U. S. Rubber .....	S. O. New Jersey.. (Goodrich).....	S. O. New Jersey.
Principal Raw Materials.	Acetylene and Chlorine. (Power).....	Firestone..... Butadiene.....	Butadiene.....	Mainly Isobutylene.
State of Development...	Well developed...	Styrene..... Fairly well developed.	Acrylonitrile..... Fairly well developed.	Still in early stages.
Probable cost in large plant.	Highest .....	Between 3 & 4 ..	Between 1 & 2 ..	Lowest.
Probable investment per ton.	Highest.....	Intermediate.....	Intermediate.....	Lowest.
Principal Advantages...	Fully developed..... Oil resistant..... Oxidation resistant.	Cheapest material as yet demonstrated for tires. Easy to mill.....	Oil resistant .....	Cheapest material in sight.
Principal Disadvantages.	High cost .....	Lacks outstanding superiority.	Reasonably low in cost. Very good in tires. Hard to mill..... Fairly high cost...	Highly resistant to oxidation. Not proven for tires. Cannot be vulcanized with natural rubber.
Suitability for tires ..	Good except too heavy.	Good.....	Probably best....	Not proven.



## SUPPLEMENTAL DATA

The following documents appear in relation to the testimony of officials of the Standard Oil Co. of New Jersey, supra, p. 4369.

\_\_\_\_\_  
TROJAN POWDER COMPANY,  
Allentown, Pa., April 17, 1942.

Mr. W. F. FARISH.

*President, Standard Oil Company of New Jersey,  
26 Broadway, New York, N. Y.*

DEAR MR. FARISH: I have read with much interest your remarks on "Synthetic Toluene" as presented before the Senate committee to investigate the national defense program, and in order that your files may be complete, I am handing you herewith a copy of my letter of April 9th, 1942, to Colonel John P. Harris.

It is my confident belief that no one played a more important or a more helpful part in obtaining the large quantities of synthetic toluene required for our war effort than Colonel Harris. Long before anyone else that I know, he foresaw the enormous quantity of toluene that would be required to make the amount of TNT needed for the military program, and with his characteristic energy he proceeded to do the hard work that was necessary to thoroughly test the quality of synthetic toluene to insure its suitability for the manufacture of TNT, and then to provide for the production of the material in suitable quantity. The success of his work is best attested by the large quantities of synthetic toluene of entirely satisfactory quality that is now being transformed into TNT each day at the Kankakee Ordnance Works, the Plum Brook Ordnance Works, and other ordnance depots.

As my letter to Colonel Harris so fully explains, the only interest that the Trojan Powder Company had in synthetic toluene in May 1940 was in connection with its efforts to be of help to the War Department in the testing of the suitability of synthetic toluene for the manufacture of TNT, and just as the production of this first lot of toluene was conducted by your company at a financial loss, we similarly assumed that the processing of this synthetic toluene to TNT under War Department Invitation #672-40-1472 would be conducted at a loss by us, but that this would be justified because it would be helpful in the defense effort of our country.

I am sure that the clear statement you made of this matter in your remarks before the committee will be helpful in dispelling some of the erroneous conclusions that appear to have been earlier drawn from the correspondence that you refer to.

Yours very truly,

\_\_\_\_\_  
TROJAN POWDER COMPANY.  
WALTER O. SNELLING,  
*Director of Research.*

WOS/kmee : dm.  
Encl.

\_\_\_\_\_  
APRIL 9, 1942.

Colonel JOHN P. HARRIS,  
*Ordnance Department, Social Security Building,  
Washington, D. C.*

DEAR COLONEL HARRIS: On my return last night from Sandusky I was shown the article which appeared on page 15 of the issue of PM of Monday, March 30, 1942, and the remarks of Senator Murray as they appear in column three of page 3318 and column one and two of page 3319 of Congressional Record of Tuesday, March 31, 1942, Volume 88, No. 66.

I am hastening to make of record the fact that the interest of the Trojan Powder Company in synthetic toluene on May 14, 1940, was solely in the desire to be of help to the War Department in the effort that we understood was then under way for the purpose of determining the suitability of such synthetic toluene for the manufacture of TNT, and was not in any way inspired by commercial considerations. I fully understood at the time that I made this inquiry for synthetic toluene that the cost of testing this material in the actual manufacture of TNT would be so considerable as to make the effort a costly one, that would involve a financial loss to the Trojan Powder Company at any price that we could reasonably charge for the TNT that would be made, and I fully understood that the cost of the work, if we were to undertake it, would have to be mainly charged off to research, and was not in any way to be considered as a probable or possible source of profit to the Trojan Powder Company.

As soon as I learned that E. I. du Pont de Nemours & Company were willing to undertake this experimental work with synthetic TNT, and were planning to do it, I dropped the matter with quite a feeling of relief. I considered that it was a fine thing for du Pont to be willing to interrupt their commercial manufacture of TNT to put through this experiment lot for you, and I, of course, recognized that a considerable part of the cost of this work would have to be charged off by them as research expense just as it would undoubtedly have been if we had undertaken the work.

If there is anything that I can do to help clear this matter up, I want you to know that I will be more than pleased to do so. I know, probably much better than most people know, how greatly your cooperation with the explosives industry has assisted in the war efforts that now mean so much to the welfare of all of us. I know of no one who is held in greater esteem by the entire explosives industry than you are, or whose efforts have been more unselfish or more valuable to the war effort in which our country is engaged. I will welcome any opportunity the present situation may have created to inform Mr. Arnold or Senator Murray or others of all the facts in this matter, and of my complete confidence that the manner in which you handled your part of this matter was correct and wise in every way and respect.

Please let me know what, if anything, you feel that I can do that will be of any help.

Yours very truly,

TROJAN POWDER COMPANY,  
 WALTER O. SNEILING,  
*Director of Research.*

WOS/km : j1.

The following document appears in relation to the testimony of officials of the Standard Oil Co. of New Jersey, *supra*, page 4393.

NAVY DEPARTMENT,  
 BUREAU OF CONSTRUCTION AND REPAIR,  
*Washington, D. C., November 10, 1939.*

Refer to No. JJ/Rubber—(1) (RI).  
*Restricted.*

DR. PER K. FROLICH,  
*Chemical Laboratories, Standard Oil Development Co.,  
 P. O. Box 243, Elizabeth, New Jersey.*

SIR: The Bureau acknowledges with thanks receipt of your letter of October 20, 1939, containing as enclosure a copy of a review on the "Properties of Butyl Rubber."

In accordance with your suggestion, a Bureau representative will visit your experimental plant and laboratories on Thursday, November 16, 1939.

Information is requested if arrangements can be made whereby you and other technical men interested in the above-mentioned products may be available on that day, so that a schedule mutually satisfactory may be arranged.

Respectfully,

GUY CHADWICK.

The following letters are included at the request of Standard Oil Co. in connection with testimony, *supra*, p. 4420. Mr. Howard states that: "This letter indicates that Goodrich was really interested only in specialty rubber. They had stated earlier (see MBH to FAH, 11/13/39, below) that Buna-S would require Government subsidy."

THE B. F. GOODRICH COMPANY,  
Akron, Ohio, January 11, 1940.

Dr. M. B. HOPKINS,  
Standard Oil Development Company,  
26 Broadway, New York, N. Y.

DEAR MR. HOPKINS: Your letter of January 10 reached my desk late this afternoon.

A casual reading of the letter causes me to think that we are not so far apart as you seem to believe.

As you know, we have done a great deal of work in this field and we are prepared to go forward with the manufacture of a product to take the place of perbunan as soon as the money for the project is authorized.

We have deferred discussions on this expenditure because we preferred to manufacture, use, and sell perbunan under license from you along the lines covered in our several meetings.

As you know, for a number of months we have been faced with the problem of finding a substitute for perbunan, as our supply of this material is being used up rapidly in spite of the fact that we are using substitutes wherever possible.

We have been, and we hope that we will continue to be, the largest users of perbunan in the United States. Our studies indicate that a plant of 6,000 pounds per day capacity is as small a plant as we should consider. This plant could easily be expanded to 9,000 pounds per day if the material could be used or sold.

In our first discussions we indicated our interest in perbunan on a basis of "make, use, and sell." On Buna-S our viewpoint was quite different for we see no reason to undertake commercial production on a basis of less than 200,000 pounds per day. A plant the size of the proposed perbunan plant could only be considered as a pilot plant for the manufacture of Buna-S.

Materials at reasonable prices will be available as soon as we are ready with our plant.

We should like very much to talk with you again as soon as possible. I will be back in Akron on Thursday, January 18, and hope that you can arrange to meet with us then.

Sincerely yours,

T. G. GRAHAM, *Vice President.*

NOVEMBER 13TH, 1939.

Mr. F. A. HOWARD,  
Building.

DEAR MR. HOWARD: I talked with the Goodrich people at Akron, Ohio, on Friday, November 10th, 1939.

Present: Mr. T. G. Graham, Vice President; Mr. J. W. Schade, Director of Research; Mr. Avery, Patent Attorney; Mr. V. I. Montemzohl, Treasurer; Dr. Semon.

I outlined our position with respect to (1) having recently taken over the Buna development for the United States and our desire for the cooperation of the rubber industry in finding the best way to commercialize it and (2) possibilities of Buna in connection with national defense.

Goodrich is definitely interested in Perbunan and asked for a license to go into manufacture immediately. The license need not be exclusive. Goodrich has been the largest user of Perbunan in the United States, having taken as much as 20,000 lbs. per month. They would like to build a plant to make 3-5 tons per day. This quantity is based upon their own requirements plus the quantity Mr. Mullaly of Advance Solvents has indicated he can sell to others.

Goodrich has a large chemical organization—about three hundred chemists in the Akron laboratories. They are already making Koriseal, which is a polymer of vinyl chloride. They have carried the Perbunan process through the laboratory stage and consider that they are ready to build a small commercial plant. They consider themselves logical producers, not only because they know more about the uses of Perbunan but also because they are more active in the chemical field generally than any other rubber company as a result of their manufacture of anti-oxidants, accelerators, and other chemicals for the rubber industry.

The Goodrich desire to do their own manufacturing is apparently based upon the idea that they can move more quickly if they go ahead independent of others. The desire to move fast outweighs with them the advantage from a cost standpoint of getting volume by having the total production for the industry made in one plant. They think they can make Perbunan at a cost competitive with Neoprene.

Goodrich has not lined up sources of butadiene and acrylic nitrile. They anticipate no difficulty in buying the acrylic nitrile from chemical manufacturers at the start and would eventually manufacture it at the Perbunan plant. They look to the oil industry for butadiene and stated that representatives of several oil companies had asked them about the quantities of butadiene they could use. From the questions they asked about butadiene production by the oil industry, I judged that they do not themselves know much about butadiene production.

"With regard to Buna-S, Goodrich finds it as good as or a little better than natural rubber. At a competitive price they would be quite willing to use it to replace natural rubber. They consider that production of at least 100 tons per day in the United States would be necessary to make it practical commercially from the standpoint of rubber companies taking hold. Their best information now is that, for one reason or another, capital requirements and operating costs, we are not yet ready for such a large-scale operation. If, however, through Government subsidy or by other means, Buna-S becomes available, Goodrich will use it." So far as national supplies are concerned, there are stocks in the United States which will last 3½ months and an additional supply on the water for 1½ months. In an emergency this supply, plus increased use of reclaimed rubber, would make it possible to get along about one year, after which the country would be dependent upon the ingenuity of American chemists and engineers, in which Goodrich has much confidence. Goodrich believes it desirable, however, that a small plant to make, say, 5 tons per day of Buna-S would be a desirable protection. Such a plant would perfect the process in anticipation of a large plant. The small plant operation should result in a continuous process before a large plant is installed. Goodrich, in reply to questions from Washington, suggested a five-ton plant and estimated that its cost and the cost of operation for a year would be about \$500,000, made up as follows:

Plant: \$150,000-\$300,000, depending upon extent to which raw material is available from outside.....	\$300,000
Subsidy: To make competitive with natural rubber.....	100,000
Contingencies.....	100,000
	<hr/>
	\$500,000

The most important point made by Goodrich in favor of independent production by the different rubber companies is that the immediate supply problem could be best met if it were not necessary to take the time to get all of the companies working together.

Very truly yours,

MBH:GD

CC: Mr. R. P. Russell, Mr. E. V. Murphree, Mr. H. W. Fisher.

The following document appears in relation to the testimony of officials of the Standard Oil Co. of New Jersey, *supra*, pp. 4403 and 4461:

JUNE 6, 1940.

Mr. J. E. TRAINER.

*Vice President, Firestone Tire & Rubber Company, Akron, Ohio.*

DEAR MR. TRAINER: This will confirm our discussions of today concerning Butyl Rubber, as follows:

We are agreed that Firestone Tire & Rubber Company and Standard Oil Development Company should undertake at once full technical cooperation in the utilization of Butyl Rubber in the manufacture of rubber products, especially tires.

Recognizing that such cooperation requires that each party should have immunity from suit for itself, its licensees, and its or their customers under any patents for inventions made by the other party in the field of the cooperation and during the period thereof, it is understood and agreed that each of us is bound by such an obligation and that the minimum period of our cooperation shall be one year.

It is further agreed that neither party will pass to another the immunity from suit under the other party's patents which it has the power to pass hereunder unless the beneficiary of such immunity shall reciprocate, and that Standard Oil Development Company will not supply any samples of the Butyl Rubber to others than Firestone before September 15, 1940, unless such others shall enter into agreements similar to this agreement.

Very truly yours,

STANDARD OIL DEVELOPMENT COMPANY,

By \_\_\_\_\_, *President.*

FIRESTONE TIRE & RUBBER COMPANY.

By \_\_\_\_\_, *Vice President.*

The following document appears in relation to the testimony of officials of the Standard Oil Co. of New Jersey, *supra*, p. 4437 et seq.:

NOVEMBER 30TH, 1939.

Mr. T. G. GRAHAM,

*Vice President, the B. F. Goodrich Company,  
Akron, Ohio.*

DEAR MR. GRAHAM: Following discussions with your company and other rubber companies as to the best procedure for advancing the Perbunan synthetic rubber development in the United States, we have arrived at a plan which we wish to submit for your consideration.

Our first thought in this matter was to invite certain rubber companies to participate in a manufacturing company which would supply both Perbunan and Buna-S to the participants and also to the trade generally. It was thought that a concerted effort in a single plant might realize economies not attainable in separate plants operated independently. Production of the higher-cost specialty, Perbunan, in this plant might be followed by production of Buna-S, the material used by the Germans for tires. Centralized facilities seemed most likely to make possible a quick production of Buna-S to serve the national defense in case natural rubber supplies are cut off.

It seems, however, to be of paramount importance that Perbunan be manufactured in the United States as quickly as possible so as to take care of the requirements of present Perbunan users. They can no longer depend upon obtaining the imported material. The time required to bring a group of companies together to meet this situation is not available. Also, to the extent that raw materials can be obtained from existing facilities in oil refineries and chemical plants and need not be manufactured at the synthetic rubber plant, the manufacture of Perbunan does not require very large-scale investments or production to be economical.

Some of the rubber companies are prepared to get into production of Perbunan upon short notice. Others may wish to have it manufactured for them. We therefore decided to defer consideration of the plan for a single plant and to offer to license your company and certain other rubber companies who are willing to proceed immediately to produce their own requirements and provide by contract with us for supplies which we will sell to the trade generally.

A form of license has not been prepared but the following are terms tentatively arrived at for inclusion in licensing agreements:

1. Licensee will have the right to produce the Perbunan and Buna-S rubber for its own consumption in making finished products, and for sale to licensor only.

2. Licensee will make a product sales agreement with licensor.

3. Licensee will pay licensor royalty at rate of 7.5¢ per pound.

4. Licensee may with licensor's approval nominate an acceptable third party to manufacture for its consumption under suitable agreement binding the third party to the same terms complied with by direct licensee.

5. Licensor will bring into the agreement its own improvements and licensee will be required to give license back to licensor for its improvements in the manufacture of Perbunan and Buna-S rubber as defined in the agreement. This cross license will not be transferable except as a part of the transfer of licensor's entire interest in these rubbers.

6. Licensee will covenant not to sue licensor's customers or other licensees under:

(a) any patent for the handling or processing of these rubbers, or

(b) any patent for process or product in which the real invention is the substitution of these rubbers for natural rubber or for some other rubber-like material.

7. Licensee will agree to do certain development work on Buna-S to provide design data for the construction of a commercial Buna-S plant.

8. Licensee will agree to make Perbunan or Buna-S tires under a U. S. Government order providing suitable compensation to licensee.

We should mention that due to the situation created by the war in Europe there has been a delay in completing the formal withdrawal of the I. G. Farbenindustrie from this development in the United States. Notwithstanding this delay, we believe we can proceed with our arrangements with you upon the assumption that all of our documents will be in order in time to sign licensing agreements.

Presumably your company would wish to be a producing company rather than a consumer of purchased Perbunan and Buna-S rubber. We would appreciate your early advice as to how this plan meets your situation.

Very truly yours,

STANDARD OIL DEVELOPMENT COMPANY,  
M. B. HOPKINS.

MBH:GD.

The following document appears in relation to the testimony of officials of the Standard Oil Co. of New Jersey, *supra*, p. 442.

FEDERAL LOAN AGENCY,  
Washington, October 25, 1941.

MR. FRANK A. HOWARD,

*President, Standard Oil Development Company,  
30 Rockefeller Plaza, New York, New York.*

DEAR MR. HOWARD: Referring to our recent conversations regarding amount of royalty to be paid by Rubber Reserve Company for the use of your patents in connection with our synthetic program:

Our position is that this program, at present intended to provide for the production of 40,000 tons of synthetic rubber per annum, is of an experimental and educational character to prepare the ground for a much larger program in case of need. Obviously, as long as natural rubber can be obtained, we cannot hope to put this synthetic rubber into automobile tires except at a loss.

Accordingly, it is our feeling that during this experimental and educational period, your company should be willing to accept a token royalty payment.

If because of increased cost of natural rubber, the utilization of synthetic rubber for commercial purposes, or through any other circumstances, it becomes possible to manufacture and market the product of these synthetic-rubber plants on a commercial basis at a profit, we are prepared to give careful consideration at that time to a payment of a 3% royalty on the use of your patents.

I will appreciate it if you will again review this matter with your associates and let me know if the above suggestion meets with your approval.

Sincerely yours,

W. L. CLAYTON,  
*Deputy Administrator.*

F. A. H. saw Clayton afternoon of Oct. 27. Clayton suggested solution as follows, which F. A. H. accepted:

1. No royalty first year.
2. 1% second year.
3. 3% thereafter.

The following document appears in relation to the testimony of officials of the Standard Oil Co. of New Jersey, *supra*, p. 4453.

MAY 8, 1940.

United States Patent No. 2,191,295—H. Dohse et al.—Assigned to I. G.

DR. K. HOCHSCHWENDER,

*Chemunco, Inc., 521 Fifth Avenue, New York, N. Y.*

DEAR DR. HOCHSCHWENDER: We have noticed the recent issuance of the above-mentioned patent, assigned to I. G. The first claim of the patent reads as follows:

"The process for the production of road-building materials containing bituminous substances in intimate combination with solid substances which comprises bringing the said bituminous substances and the said solid substances together

in the presence of an 'adhesive' selected from the group consisting of active organic derivatives of ammonia containing at least one lipophilic radical directly attached to a nitrogen atom of said ammonia derivative by means of a nitrogen to carbon bond and the analogous compounds derived from phosphorus, arsenic, antimony, and sulphur."

It may be that we shall have some interest in this invention. We regard it as one of the so-called "AD" class of inventions under the Four Party Agreement of November 9, 1929. You will recall that as to this class of inventions, I. G. and Jersey have made a practice of negotiating separate agreements.

We feel sure that you would call to our attention any proposed licensing of this patent; this is merely to advise you that we may be interested in it at some later time.

Very truly yours,

W. E. CURRIE.

WEC:MS.

Cc: Mr. R. P. Russell, Mr. E. V. Murphree, Mr. H. G. M. Fischer.

The following document appears in relation to the testimony of officials of the Standard Oil Co. of New Jersey, supra, p. 4453.

JUNE 26, 1940.

United States Patent No. 2,191,295—H. Dohse et al.—Assigned to I. G.

Dr. K. HOCHSCHWENDER.

*Chemunco, Inc., 521 Fifth Avenue, New York, N. Y.*

DEAR DR. HOCHSCHWENDER: Referring to our letter of May 8, 1940, the use of lauryl amine as an addition agent for asphalt to permit its use on wet aggregate, is of interest to us and we should like to know what royalty arrangement can be made in this connection. Naturally, the commercial use of the material will depend, to a considerable extent, on that factor.

Our investigation so far indicates that the maximum which we could afford to pay for the use of lauryl amine in asphalt, would be 25¢ per ton of asphalt. There are, of course, other substances which can be used instead of lauryl amine for the intended purpose, but it now seems to be one of the more readily available chemicals adapted for this use.

Would you be kind enough to consider this matter and, if you approve, take it up with I. G.?

We wish you would also consider the possible desirability of having this patent assigned to the Standard Oil Development Company, subject to reversion to I. G. under suitable conditions.

Very truly yours,

W. E. CURRIE.

WEC:MS.

BCC: Mr. H. G. M. Fischer, Mr. J. B. Mockaitis, Mr. E. V. Murphree, Mr. R. P. Russell.

The following document appears in relation to the testimony of officials of the Standard Oil Co. of New Jersey, supra, p. 4461.

JUNE 20TH, 1940.

Mr. J. E. TRAINER.

*Vice President, The Firestone Tire & Rubber Company.*

*Akron, Ohio.*

DEAR MR. TRAINER: During our discussion of Butyl rubber with you on June 6th, I believe you were informed that samples of Butyl rubber have been furnished to U. S. Government departments for purposes relating to national defense. Additional samples will be furnished as required. No mention of these samples was made in my letter confirming our discussion but I am assuming that you will not consider the supplying of samples to Government departments as being contrary to our agreement.

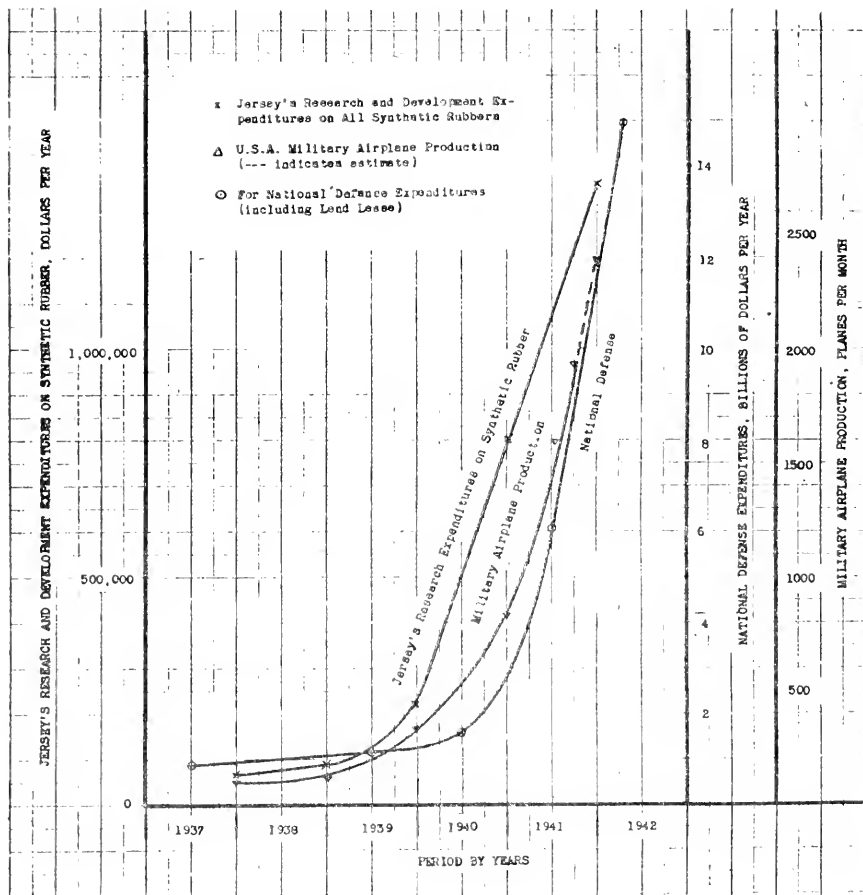
Very truly yours,

FRANK A. HOWARD.

MBH:GD.

The following document appears in relation to the testimony of officials of the Standard Oil Co. of New Jersey, supra, p. 4484.

JERSEY'S RESEARCH AND DEVELOPMENT EXPENDITURES  
ON SYNTHETIC RUBBER, COMPARED TO THE  
NATIONAL DEFENSE EFFORT



The following documents appear in relation to the testimony of officials of the Standard Oil Co. of New Jersey, supra, p. 4463.

OCTOBER 11, 1940.

MR. EDSSEL FORD,  
President, Ford Motor Company,  
Dearborn, Michigan.

DEAR MR. FORD: Reviewing today your letter of August 22 and Mr. Frank A. Howard's reply in my absence, it seems desirable that I write you on the subject and attempt to bring you up to date on our thoughts with regard to the synthetic rubber situation.

It is apparent at the moment that if any help is given to the development of synthetic rubber on the part of the Government it will be through the R. F. C.



(Mr. Jones). Probably due to the fact that the Rubber Reserve Company—which company was formed to secure supplies of raw rubber—is a creature of R. F. C., the question of Government aid to synthetic rubber production also has been placed in the hands of R. F. C., so that any program or study that may have been under consideration by the Advisory Commission of National Defense is canceled and has been turned over, as stated, to R. F. C.

Just what Mr. Jones will do with the subject is a matter of conjecture. As Buna rubber has had the test of practical experience in tires that have been and are being made from it, it is apparent that the production of this rubber should be the first consideration of Mr. Jones. In my judgment Butyl rubber will not be in the picture for the present as it has not been demonstrated that a satisfactory tire can be made from same, and because whatever encouragement is given by the Government to the production of synthetic rubber undoubtedly will be of the Buna type.

I am under the impression that opinion in Washington as to the importance of synthetic rubber production is not very positive. I have been told that it is not considered of primary importance.

We find that a loss of exports of oil to the extent of some five percent in volume has brought about unbearably low wholesale prices of gasoline. A further loss in outlet which would be brought about by any restriction on the production and sale of tires would not only cause the oil industry additional hardship but, in our judgment, would cause all industry real trouble—particularly oil and automobiles—and would no doubt be a great setback to all business.

Realizing this, and looking at this rubber situation from an over-all national point of view, we are forced to the opinion that encouragement should be given by the Government to develop a reasonable supply of synthetic rubber. In arriving at this conclusion we are influenced by:

1. The rubber supply of the world now is under cartel control, and at times United States has had to pay unreasonably high prices for rubber. The present price is high.

2. A reasonable supply of synthetic rubber at home would act as a brake on advancement of cartel prices; such supply would tend to stabilize the price of rubber at a reasonable figure.

3. The art of making and of compounding synthetic rubber should be developed to its maximum because of the above conditions, and because it is possible that some day this country will depend largely on synthetic rubber.

Therefore, it is our opinion, looking at the over-all economy of the United States, that the Government today could well afford either to encourage the building of a reasonable amount of synthetic rubber production, or as an alternative, putting some reasonable tariff on imports of raw rubber that would encourage the commercial development of synthetic rubber. Another form that aid in the commercial development of synthetic rubber might take would be a remittance of the present tax on all tires and this rebate applied to tires made from synthetic rubber. Some practical program could be worked out, either with a tariff or remittance of the present tax, I am sure.

The real reason for writing you at this time is to suggest that, if you agree with the general principle that development of synthetic rubber should be encouraged, you might be willing to go into the matter further, with the view of lending your help in educating Mr. Jones on the entire subject. Here is a real chance for him, as the new Secretary of Commerce, to make some contribution toward protecting business and industry against a possible shortage of rubber in this country.

I have the feeling that the oil industry, who, having the raw materials, would be the primary manufacturers of synthetic rubber, is somewhat handicapped in speaking for the general good of the United States as a whole. The automobile industry has not this handicap, and I am sure if you agree with the reasoning that led us to our conclusions that your aid will be most valuable.

If anyone in our organization can be of service to you in further consideration of this matter, please call on us.

Very truly yours,

W. S. FARISH.

The following correspondence is included in connection with the supplemental statement of Thurman Arnold which appears infra, pp. 4808-4932.

STANDARD OIL COMPANY,  
30 Rockefeller Plaza, New York, June 1, 1942.

SENATOR HARRY S. TRUMAN,

*Senate Committee to Investigate the National Defense Program,  
Senate Office Building, Washington, D. C.*

MY DEAR SENATOR: It has been our understanding that a purpose of your committee, in investigating the National Defense effort, has been to sift the facts on the rubber situation and report your conclusions to the people of this country. Among others, we were given opportunity to present to the committee in public hearings Standard's interest in the problem of synthetic rubber.

The committee has summed up and interpreted its findings. Your report was made public on last Tuesday, May 26th.

In that part of the report which referred to Standard Oil there were conclusions and deductions to which we could not agree. We felt, however, that this time of national emergency was no time for prolonged public controversy. We therefore said nothing.

Mr. Thurman Arnold has now filed with your committee a rebuttal to statements made by us before the committee in public hearings, releasing this rebuttal to the press. In the midst of war we wish to avoid all controversy with any agency of our Government, but we cannot remain completely silent under new accusations.

While your committee and Mr. Arnold both absolve us from any unpatriotic motives, he deduces from the documents in his possession an attempt by us to mislead your committee. I hope I need not assure you that there has been no attempt on our part, of any kind, to mislead you. Such a conclusion could be reached only from a misunderstanding of selected facts and not from knowledge of all the facts.

I want to reiterate what we told your committee, that no action of ours has delayed the production of synthetic rubber in this country or hampered any other item of our war effort. To the contrary, it has brought to this country invaluable weapons for winning the war. Out of our activity came, in 1935, 100-Octane Aviation gasoline, which puts the planes of the United Nations far ahead of Axis planes. Out of this activity came synthetic Toluol, which has multiplied the volume of high explosives we can dump on the enemy. Out of it came Paratone, which today is used in almost every fighting plane, tank, gun, and ship in the Army, Navy, and Air Corps. Out of it came American control of the Buna rubber processes, which we were able to take over completely from the Germans in 1939 solely because of our 1929 agreements. Out of it came the processes which we have developed and which will be used for production of most of the butadiene for Buna rubber made in the oil industry. Out of it came Vistanex, one of the few special types of synthetic rubber in actual production in the United States before the European War. Out of it came Butyl rubber, our own development from the Vistanex formula, which by the report of your committee is perhaps the most promising of all synthetic rubber developments.

We wish to point out that the new statement just filed with you raises for the first time the point, surprising to us, that these unquestioned benefits of the 1929 agreements would in fact have come to us under the earlier 1927 agreement with the I. G. The 1927 agreement was limited to oil processes for use in the United States. It gave no rights in the oil processes outside of the United States and no rights for coal hydrogenation even in the United States. It gave no rights at all in any of the valuable oil-chemical processes, such as synthetic rubber. In the oil processes themselves it left the I. G. in complete control of the licensing or nonlicensing of all their patents, and therefore would have left them in control of the patent licenses necessary for 100-Octane Aviation gasoline and Toluene production by the oil industry of the United States except by Standard itself. We remedied these things in the 1929 agreement.

The only control of new chemical developments which Standard gave up to the I. G. in the 1929 agreements was limited to new chemical developments of Standard outside of the oil industry. Neither in the sixty years before nor in the thirteen years since the 1929 agreements has Standard ever had any

such new chemical developments of any value or importance—for the simple reason that the Company does not interest itself in this field completely outside of the oil business.

If in your opinion the national interest requires any further examination of this whole matter, we will be glad to file with you a documented review of the matters raised in Mr. Arnold's brief.

I hope you will agree that circumstances force us to make copies of this letter available to the press. I am sending it by special messenger so that you may be certain to have it before it is released tomorrow morning.

Sincerely yours,

W. S. FARISH.

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WASHINGTON, D. C., *June 9, 1942.*

Mr. W. S. FARISH,

*President, Standard Oil Company,  
30 Rockefeller Plaza, New York City.*

DEAR MR. FARISH: Your letter of the Sixth came while I was in Atlantic City on a speaking engagement. I read it with much interest, and, of course, you and I are not in agreement on just what the facts of our hearings show. I have my views on the subject and, of course, you are entitled to yours.

The Honorable Thurman Arnold's digest of correspondence and testimony which he furnished the Committee will become a part of the record. So far as I am personally concerned the record is complete.

I cannot see any reason for further hearings, although if the Standard Oil Company of New Jersey does not feel it has had a square deal a further hearing might be arranged. At this time I cannot see that any good purpose would be served by reopening the whole case.

Sincerely yours,

HARRY S. TRUMAN, *U. S. S.*

HST:MLD.

SUPPLEMENTAL STATEMENT, JUNE 1, 1942, OF HONORABLE THURMAN W. ARNOLD,  
ASSISTANT ATTORNEY GENERAL OF THE UNITED STATES, BEFORE THE SPECIAL  
COMMITTEE INVESTIGATING THE NATIONAL DEFENSE PROGRAM OF THE SENATE OF  
THE UNITED STATES (TRUMAN COMMITTEE)

I am filing this additional report in order to clarify distortions of fact and in order to present additional documents to this Committee. The Standard Oil Company of New Jersey has, through the press and over the radio and through a special report to its customers, which I herewith submit to the Committee as Exhibit A (see *infra*, p. 4830), denied the facts laid before this Committee on March 26. The testimony of Mr. Farish and Mr. Howard before this Committee is contradicted by the documents already presented to this Committee and by the further documents which I will now present.

When I appeared before this Committee I was careful to point out that "in fairness to the defendants I think I should say that there is no alliance with German interests from unpatriotic motives. \* \* \* The sole motive was an attempt on the part of Standard Oil to get a protected market, to eliminate independent competition, and, finally, to restrict world production in order to maintain that production." I must say, however, that I do not believe that Standard has fulfilled its obligation to this Committee to tell the truth about its cartel arrangement. This is not the time to cover up or mislead. This continuing defense of the cartel arrangement with I. G. Farben is the most alarming demonstration of the need for immediate legislation. Specifically:

(1) This Committee was told that Standard's cartel obligations and its contract obligations never interfered with cooperation with the United States Government. Standard did not tell the Committee that a program desired by the United States Army for the development of fuels which would have put our Army ahead of the rest of the world "as regards performance of their fighting equipment" was contrary to Standard's obligations to I. G. Farben. It did not tell the Committee that the Assistant Secretary of State had to threaten to blacklist the Standard subsidiary before the shipment of gasoline to the Axis airlines was stopped.

(2) This committee was given the impression that the proposed arrangement with Mitsui was only the suggestion of a local manager. It was in fact the suggestion of the Board of Directors of Standard and its failure to come about was due only to the opposition of Shell.

(3) This committee was told that Standard had not licensed the Japanese to make gasoline by the hydrogenation process. I did not charge that they did, but full disclosure by Standard would compel it to inform this Committee that Standard's 50% owned subsidiary did license the Japanese to manufacture the chief ingredient in 100-octane aviation gasoline.

(4) Standard justified the construction of an aviation gasoline plant for the Germans because Standard had a German subsidiary. Standard did not tell this Committee how the beginning engineering work and a part of the expense were borne by Standard in this country and how it was Standard's experience which went into the construction of this plant.

(5) Standard told this Committee that it got the germ of synthetic toluol and of aviation gasoline from I. G. Farben under the 1929 cartel agreement. Standard didn't even tell this Committee that there was a 1927 agreement which gave Standard whatever it got as to synthetic toluol and hydrogenation, and that under this 1927 agreement Standard did not give to I. G. control of new chemical developments.

(6) Standard attempted to cover up and mislead this Committee as to (1) the information it received from I. G. Farben on buna rubber; (2) the information it gave our own government on synthetic rubber; (3) its failure to disclose to the State Department the I. G. Farben control over synthetic rubber; (4) its deliberate effort to frustrate the development of a synthetic rubber program in this country unless Standard were allowed to dominate it; and (5) its continuing relationship with I. G. Farben.

There are other examples of failure to disclose which I shall discuss later on.

## CONTINUATION OF THE CARTEL

Mr. Farish testified before this committee that—

"By the rearrangements made in 1939, therefore, the entire contract relations between the parties became a simple question of money payments. So long as America remained at peace, these money payments were to be made to the account of the I. G. in a New York bank, subject, of course, to the exchange control of the United States Treasury Department."

I am sorry to say that document after document shows that on the contrary Standard and I. G. did not reduce their cartel arrangement to a simple question of money payments. They intended their cartel arrangement to continue throughout the war in accordance with a *modus vivendi* which they worked out and to resume their full connections after the war was over. Further Standard apparently acknowledged various restrictions on its freedom of action after the 1939 agreement which can only mean a continuation of the cartel restrictions even during the *modus vivendi* period.

As this committee knows, the *modus vivendi* phrase is not my description of Standard's arrangement; it was Mr. Howard's own description:

"Pursuant to these arrangements I was able to keep my appointments in Holland where I had three days of discussion with the representatives of the I. G. They delivered to me assignments of some 2,000 foreign patents and we did our best to work out complete plans for a *modus vivendi* which would operate through the term of the war, whether or not the U. S. came in" (Ex. S. 1, p. 4835).<sup>1</sup>

It is true, as Mr. Farish states, that Standard purportedly purchased I. G.'s stock interest in Standard I. G. The reason for this purchase is revealed in a memorandum of the Standard Oil Company, dated September 8, 1939. I quote:

"We recognized the fact that we should do something to protect the Company's interest to make sure that the 20% interest held by I. G. Farben should not fall into unfriendly hands last Thursday, August 31st, Messrs. R. P. Duisberg, H. W. Fisher, and the writer had a long conference with Dr. Walter Duisberg and proposed that we reacquire these shares from the I. G. Farben at cost of \$20,000. \* \* \* Of course what we have in mind is protecting this minority interest in the event of war between ourselves and Germany, as it would certainly be very undesirable to have this 20% interest in Standard I. G. pass to an Alien Property Custodian who might sell it to an unfriendly interest" (Ex. S. 2, p. 4838).

But what of the patents which were assigned? Apparently Standard did not gain complete control of them. An explanation of the Hague Memorandum is given in one of Standard's own memoranda on the subject dated June 4, 1940. I quote:

"2. *Changes Made by The Hague Memorandum.*—By virtue of The Hague Memorandum, effective as an agreement as of September 1, 1939, the 50% stock interest of I. G. was delivered to certain trustees for the benefit of Development. The memorandum provided that Jasco's obligations to pay royalties to Development and I. G. were to be cancelled, so that all proceeds of Jasco's exploitation of its processes would be for the benefit of Development. To compensate I. G., it was agreed that Jasco and Development would cede to I. G. all their rights to these processes throughout the world outside of the United States, the British Empire, and France and its possessions. Germany has always been entirely outside the original and the revised Jasco arrangement.

"An essential feature of The Hague Memorandum is that there shall be a periodic comparison of the returns from the exploitation of the processes in question in the territory reserved to Jasco against the territory assigned to I. G., so that adjustments may be made from time to time in the event that this division of territory does not have the effect of dividing the returns from the exploitation of the processes between Development and I. G. in the same way that they would have been divided under the original Jasco set-up.

"3. *Proposed Further Steps.*—As steps to put The Hague Memorandum into effect it is contemplated that Development and Jasco shall quitclaim to I. G. all their rights to the aforesaid processes for the I. G. territory and that I. G., Development, and Jasco shall, for the territory reserved to Jasco, assign their patents to trustees to be held for the benefit of Development. Development would have the sole right to license the patents of the trustees (for Development's own benefit) provided, however, that Development's right to license shall be subject to obtaining in each instance the trustees' written approval of the sufficiency of

<sup>1</sup> To differentiate Mr. Arnold's supplemental exhibits from the exhibits entered during the hearings, they were designated as "Arnold" exhibits.—Ed.

the consideration to be paid for the license. The trustees' right to disapprove any license has a double purpose, firstly a purpose which would be expressed in the documents, namely, to protect I. G.'s interest in the periodic comparison of profits by seeing to it that Development exploits the patents for not less than fair value and secondly, a purpose which we do not contemplate mentioning in the documents, namely, to keep these patents, as in the past, outside of the category of patents over which Development has complete control and under which Development therefore passes rights by virtue of Development's many past and future agreements and licenses purporting to pass rights under all patents controlled by Development and its wholly owned subsidiaries" (Ex. S. 3, p. 4840).

Indeed it appears that these patents were to be held in accordance with the basic underlying cartel agreement between the parties. Thus a letter from W. E. Currie, Standard's patent attorney and one of the trustees to whom I. G. patents were assigned, to Frank Howard, dated July 18, 1941, states (I quote:)

"We have had some communication from I. G. with respect to licenses for hydrogen manufacture in connection with fat hardening and the like. I. G. wishes to have a royalty of 0.8¢ per thousand cubic feet of hydrogen, and as an information fee, 7½% of the cost of the equipment used in the direct manufacture of the hydrogen (excluding equipment for converting carbon monoxide to carbon dioxide).

"I. G. has made no commitment as to the manufacture of hydrogen for ammonia synthesis, and wishes to reserve the right to pass on all licenses, particularly with respect to the purpose for which the hydrogen is to be used.

"We do not have any right to license I. G.'s patents outside of the hydrocarbon field. If we give others information as to hydrogen manufacture outside the hydrocarbon field, I. G. would no doubt believe that it is entitled to compensation for our having done so.

"The I. G. patents on hydrogen manufacture are in my name as Trustee" (Ex. S. 4, p. 4841).

The fact that the basic territorial division was to be continued by The Hague Memorandum is indicated by the following cable sent by Frank Howard to I. G. in 1941 in which it is clearly shown that the parties had up to that date preserved the territorial restrictions. (I quote:)

"IGNSEKRETARIAT, BERLIN, GERMANY.

*Jan. 20, 1941.*

"AC 19 Ringer to effect important tax savings we would like to liquidate Jasco and therefore ask you to cable us confirming our understanding that Jasco contract dated September 30, 1939, with amendments was supplemented and in part superseded as of August 31, 1939, by Hague memorandum re readjustment of Jasco and the letter of September 25, 1939, regarding Oppanol and to further cable us confirming agreement on following modifications in mechanism firstly Jasco to assign its patents for your territory to IG or trustees nominated by IG and for Jersey territory to Development or Trustees nominated by Development. Secondly Jersey hereafter to assign its patents same as under firstly and IG hereafter to assign its patents for Jersey territory to Development or said Trustees. Thirdly Trust Agreement regarding five Jasco shares would be cancelled in order liquidate Jasco and functions of this Trusteeship would be replaced by Trusteeship of patents for Jersey territory as suggested in firstly and secondly.

STANDARD OIL DEVELOPMENT COMPANY,

FRANK A. HOWARD, *President.*"

(Ex. S. 5, p. 4842.)

FRL:JW

Further new arrangements were planned between the cartel partners. On January 30, 1940, Standard was drawing up drafts for a new Jasco agreement which would apply to future patent rights. A portion of this agreement reads as follows (I quote):

"B. For the United States, the British Empire, and the French Empire (France, its colonies, possessions, protectorates, and mandates), Jersey shall grant to Jasco exclusive licensing rights (excluding also the grantor) under all its patent rights insofar as they relate to the process in question, and I. G. shall assign to Jasco all its patent rights relating to the process in question.

"C. For the remainder of the world, except Germany, Jersey and Jasco shall grant to I. G. exclusive licensing rights (excluding also the grantor) under all their patent rights insofar as they relate to the process in question.

"D. For Germany, Jersey, and Jasco shall grant to I. S. a nonexclusive, royalty-free, divisible, transferable license under all their patent rights insofar as they relate to the process in question." (Ex. S. 6, p. 4842.)

And there was to be a new agreement on catalytic refining processes. On May 11, 1940, I. G. Farben wrote Standard as follows (I quote) :

"Gentlemen: Mr. Howard has reviewed with us the proposed new arrangements Standard I. G. is to make in accordance with the documents listed in the attached schedule.

"In the annexed memorandum of our own commenting on these proposals we have outlined certain changes which we regard as essential and others which we regard as desirable. Subject to the acceptance of the essential conditions referred to in the memorandum and further subject to the conditions of this letter, we agree that you may proceed to complete the contemplated arrangements and that we will do everything required of us to enable you to do this.

"1. Standard I. G. and I. G. release each other from all obligations to exchange technical experience for the period of the present war and for so much longer as governmental restrictions may apply to either side in that connection.

"2. Standard I. G. and Standard agree that CRA will grant no licenses or immunities on Catalytic Refining processes at a rate of less than 2 1/2% per barrel and no immunities in Intermediate Zone processes of Class I and II at a rate less than 80% of its lowest licensing rate to third parties without I. G.'s consent.

"3. I. G. agrees that Standard I. G. or CRA may grant licenses or releases under patents originating with Standard in exchange for licenses or releases for members of the Standard family without limitation or accounting, but if any consideration in cash or its equivalent is received, Standard I. G. or CRA shall pay over to I. G. 20% thereof.

"Standard I. G. or CRA may grant licenses or immunities under the patent rights originating with I. G. with or without those originating with Standard and may fix the price and terms of such license, subject only to the agreement of November 9, 1929, and shall pay over to I. G. 20% of the proceeds.

"4. Standard will before final execution of the contracts obtain assurance from Shell that on the termination of the present war Shell will stand ready to join with Standard to proceed in accordance with a certain memorandum of August 15, 1939, entitled "MEMORANDUM REGARDING SHELL AND JERSEY ROYALTY PAYMENTS," the first line of which reads:

"(1) It has been agreed that Shell and Jersey for the world outside of \* \* \*, and the last line of which reads:

"\* \* \* Company for the licensing of the processes in which I. G. is interested."

"5. I. G. and Standard will enter into an agreement between themselves in accordance with the principles of the London draft of October 13, 1938, entitled "SECOND DRAFT OF I. G. AND JERSEY AGREEMENT ON CATALYTIC CRACKING," corrected and revised to suit the changed arrangements of the documents of the annexed list. This agreement will furthermore contain provisions to the effect that all German rights which CRA holds or acquires through the new contracts will be transferred to I. G. for Germany as provided for in the so-called Long Beach Agreement." (Ex. S. 7, p. 4845.)

The relationship between I. G. and Standard was not a simple question of money payments after 1939; it was a continuation of the full marriage between the parties. I assume that it was in continuation of this full marriage that Standard sent to I. G. on November 10, 1941, its application for a patent on an improvement in Vistanex. I assume it was also in continuation of that full marriage that Mr. Farish apparently thought that Standard would receive better treatment from the gentlemen of the German I. G. than from the German commissaire in France. I herewith submit to this committee a memorandum from Standard's files indicating that a proposal on the part of I. G. to purchase Standard's German subsidiary, D. A. P. G., might be a move "to safeguard Jersey's interest for the duration." I quote from this memorandum dated July 17, 1941:

"It is Mr. H.'s friends ideas that this is a move on the part of I. G.—as our friends and on the part of Dr. Schmitz personally—to safeguard Jersey's interest for the duration. He added, however, that this is only his impression, as this is the first time this matter has entered into the discussion.

"E. suggests that Mr. H. take up this matter in N. Y. and after that report to A. in Brazil in code so that A. will have something in writing to report to Mr. H.'s friend." (Ex. S. 8, p. 4846.)

## SYNTHETIC RUBBER

Today we need rubber, and we have found out once again that domination and monopoly do not mean production.

Synthetic rubber is a simple cartel story. Standard wanted to control and dominate the development of synthetic rubber in this country. This meant that Standard had to prevent anyone else from proceeding with an independent development, and that Standard had to procure permission from its cartel partner, I. G. Farben, to go ahead itself. Standard prevented an independent development of synthetic rubber by conducting false negotiations with the rubber companies who might have proceeded on their own, by threatening them with infringement suits and by offering them onerous licenses. Permission from I. G. Farben was not procured until the latter part of 1938, and even then I. G. refused to divulge the know-how. Thus while an independent development was stifled, Standard had neither the capacity nor the experience to insure a rapid synthetic rubber development.

The Defense program constituted both a threat and an opportunity to Standard's plan to dominate synthetic rubber production in this country. If the Defense program were to allow independent production by the separate rubber companies then it would be difficult for Standard to ever gain its synthetic rubber monopoly. On the other hand, the Defense program might provide the opportunity whereby Standard could force recognition of its patents and of its plan for the control of a synthetic rubber program. Furthermore, Standard was beginning to develop a synthetic rubber of its own called "butyl" rubber, which could be produced more cheaply than any other synthetic rubber. Standard did not reveal the process for manufacturing this new synthetic rubber to the American Government or to American companies, although it did give full information to its cartel partner, I. G. Farben. Standard apparently planned to keep this new and cheaper synthetic rubber for itself outside the Defense program.

The steps in the attempt of the Standard-I. G. cartel to control and dominate synthetic rubber in this country are as follows:

1. Under pressure from the Hitler Government, I. G. Farben had developed a Buna rubber suitable for use on rubber tires as early as 1934.

2. Standard was unable to issue any licenses on this new process for making synthetic rubber but it entered into negotiations with the various tire companies with the hope that it could delay any independent development of synthetic rubber until such time as Standard would be able to get permission from I. G. Farben to go ahead. After 1938 when Standard was given permission to go ahead with Buna rubber in this country, Standard only proposed such licenses as would assure Standard complete monopoly control over the entire synthetic rubber industry. Its licensing policy was to pile patents on patents in one centralizing company which was, of course, to be Standard or Standard controlled. It proposed licenses so onerous that it admitted that these licenses could only be considered as stopgaps. It knew that there could be no development of synthetic rubber for tire use in this country under the licenses which it proposed.

3. Through what appeared to be its control of the Buna rubber process, Standard attempted to see to it that there could be no synthetic rubber developed independently throughout the period 1935-40. Standard was constantly proposing joint synthetic rubber development programs which were to be always dominated by Standard. Standard never revealed the fact that I. G. had failed to disclose to Standard the know-how on Buna rubber.

4. By 1937 Standard had developed a new type of synthetic rubber--butyl rubber--which could be made more cheaply than Buna. Standard failed to license any one to make this butyl rubber. Despite the fact that Standard knew that I. G. had not given it the know-how on Buna, Standard sent I. G. full information as to this new butyl rubber in 1938. Standard "steered away" a representative of the Navy's Bureau of Construction and Repair despite the fact that, according to a letter from the head of Standard's own laboratories, "this representative had been instructed also to look into the manufacturing process." (Ex. S. 9, p. 4846.) Standard apparently thought that while the defense program was going off on Buna rubber it would be able to keep the cheaper butyl rubber for itself. Up to the time of the consent decree of March 25, 1942, Standard had not given any licenses under this cheaper butyl rubber process.

This is a story of a monopoly and of a cartel. Standard did not try to impede the synthetic-rubber program in this country because of unpatriotic motives. If we are to understand the lesson of this illustration we must understand that this is a typical cartel picture.



The early development of synthetic rubber by I. G. under pressure from the Hitler Government is indicated by a letter from I. G. to one of its American representatives in November 1934:

"The situation in the synthetic-rubber field has changed considerably as a result of progress that was made in the last few weeks in processing our Butadien rubber. After the unsuccessful experiments made by Conti and General Tire, all German rubber firms have been supplied with samples of our synthetic rubber for experimental purposes. This was done at the request of the Reich Rubber Commissar. After an astonishingly short time a small firm succeeded in getting favorable results so far as the use of synthetic rubber for the manufacture of tires is concerned \* \* \*." (Ex. S. 10, p. 4848.)

On January 17, 1935, Howard reported to the Standard Executive Committee as follows (I quote):

*"Synthetic rubber, Germany.*—Recent improvements make it commercially practicable and it will be developed for immediate use within Germany. Not yet commercially profitable outside Germany on account of competitive price of natural product, unless tests now under way show better wearing qualities than natural rubber." (Ex. S. 11, p. 4848.)

A letter from Mr. Howard to Teagle dated October 9, 1935, states (I quote):

"Dr. Fritz Ter Meer, one of the directors of the I. G., who is in this country at the present time, called on me last week to discuss the synthetic rubber process which has been in his charge. The status of this project is that under the instructions of the Economic Ministry the I. G. have been endeavouring to force the development as rapidly as possible during the last year. They have at the present time a plant of 25 tons per month capacity. Within one month this capacity will reach 50 tons per month; within one year it will reach 200 tons per month, and beyond this point the instructions of the Ministry are to raise the capacity to 1,000 tons per month within three years." (Ex. S. 12, p. 4849.)

By 1937 Standard knew (I quote from a report of Mr. Frank Howard):

*"Artificial rubber.*—The I. G. are building a very large capacity for the production of their artificial rubber Buna in Germany. This is an integral and important part of the German Four-Year Plan. The attention of other countries has been thus centered on this development and the I. G. are in receipt of requests for licensing this process." (Ex. S. 13, p. 4851.)

Despite this early development of Buna rubber, Standard was not given permission by I. G. to go ahead with the development in this country until 1938.

I refer to the Standard Executive Committee minutes for Oct. 31, 1938:

*"Synthetic rubber.*—Negotiations indicate that the German Government will now permit discussions of details with, and revelation of technical processes to non-German parties in interest, so that within one or two months considerable progress ought to be made in these negotiations; although the German interests hope to sell the process to the international rubber cartel, that course would probably mean the process might be buried in the interest of maintaining a market for natural rubber. From our approach, the possibility of interesting some rubber interest in the United States in a mutualized company for the commercialization of the process would seem the more normal course. Although the base stock used in this synthetic process is normally refinery gas, there is a possibility of a less prolific supply by dehydrogenating the butane in natural gas. To the extent that the patent question has been searched to date, the situation seems clear of any major difficulty.

"Buna 'N,' which is the high-quality, high-priced specialty rubber produced from this synthetic process, appears to have a ready market and Goodyear has already approached our interests for a license as soon as licenses are available.

"Buna 'S,' the lower-priced quantity product from the process, which would be used in the rubber-tire market, is more difficult to produce at a commercially practicable cost, although recent developments in Germany indicate it may be possible to produce this product at a cost of between 15¢ and 20¢ per pound, as compared with the market for crude rubber, which has varied in the past several years between 10¢ and 30¢ per pound.

"A plan in which interested parties have shown some interest is for the I. G. to put their developments of this process into Jasco, through which company our contribution to the development would also be arranged. I. G. in such an event might have, for example, a 25% overriding royalty and control of the process, the balance of the profits being split fifty-fifty between the partners. On the other hand, the value of our development contribution might be sufficient to so improve our trading position that some compromise might be effected on the 25% overriding royalty or on the control of the process, or with respect to both." (Ex. S. 14, p. 4854.)

Standard was never given the "Know-how" by I. G.

I quoted in my testimony previously before this Committee a memorandum written by Dr. Hopkins in which Dr. Hopkins stated in speaking of Buna rubber (I quote):

"So far as I know further rights to the product outside of Germany and full information regarding manufacture, use, etc., of the product have not been released to anyone by I. G., probably because the Hitler Government does not look with favor upon turning the invention over to foreign countries \* \* \*." (Ex S. 15, p. 4855.)

(I note that in my prior testimony the date of this memorandum is given as 1935. The correct date is July 23, 1937.)

In another letter signed by Hopkins dated October 1, 1937, it is stated (I quote):

"The Government does not permit export from Germany except by special government permit in every instance." (Ex. S. 16, p. 4856.)

The Committee is already familiar with the report of April 4, 1938, by Howard to the Standard Executive Committee in which it is stated that technical information (I quote):

"has not been forthcoming as a result of the German Government's refusal because of military expediency to permit I. G. to reveal such information to anyone outside Germany." (Ex. S. 17, p. 4856.)

A Standard memorandum dated October 19, 1939, explains:

"Our people have never made Buna \* \* \*. The I. G. has not furnished anyone technical information although Mr. Murphree walked through one of the plants several years ago." (Ex. S. 18, p. 4858.)

I. G.'s failure to disclose the know-how to Standard is further indicated by a letter written to Mr. Howard by Mr. Hopkins in which it is stated:

"You asked me about the amount of technical information available on manufacture of Buna rubber. Excepting information Mr. Murphree was able to get when he went through an I. G. plant eight years ago, the only knowledge our people have is derived from published patents \* \* \*." (Ex S. 19, p. 4858.)

Standard thus was not given the know-how as to Buna rubber by I. G. and it had had no experience by 1939 in manufacturing Buna rubber itself. Mr. Farish's testimony before this Committee at times appears to give the impression that the full know-how, with the exception of information as to the technical design of the I. G. plant, was given to Standard but it is my impression that the final result of the testimony by Mr. Farish and Mr. Howard is that they agree that no know-how was furnished by I. G. other than the know-how which any man in the street could get by looking at the patents. As a matter of fact, a letter written by Mr. Howard on October 25, 1939, states:

"We have not complete technical information on the Buna S. manufacture in this country and cannot obtain any more information from Germany." (Ex. S. 20, p. 4858.)

Thus, Standard never received the know-how on buna rubber from I. G. Up to 1938 it had not even received permission from I. G. to go ahead with an American development of buna. In 1938, Mr. Howard—

"deplored the fact that the German Government's restrictions on I. G.'s freedom of action have prevented our making material progress in the American field, particularly as there is some indication that the American rubber companies are making independent progress." (Ex. S. 17, p. 4856.)

Mr. Howard felt that:

"Until we have this permission, however, there is absolutely nothing we can do, and we must be especially careful not to make any move whatever, even on a purely informal, personal or friendly basis, without the consent of our friends \* \* \*. The only thing we can do is to continue to press for authority to act, but in the meantime loyally preserve the restrictions they have put on us." (Ex. S. 21, p. 4869.)

On April 9, 1938, Doctor Ter Meer of I. G., wrote Mr. Howard as follows:

"In accordance with our arrangements in Berlin, I have meanwhile taken up negotiations with the competent authorities in order to obtain the necessary freedom of action in U. S. A. with regard to rubber-like products. As anticipated these negotiations have proved to be rather difficult and the respective discussions are expected to take several months before the desired result is obtained. I will not fail to inform you about the result in due course." (Ex. S. 22, p. 4831.) Standard neither had the know-how nor the permission to go ahead, but it had to prevent independent development in this country. It knew that the rubber tire companies knew more about making synthetic rubber than it did. For instance, in 1939, Doctor Hopkins stated (I quote):

"Goodrich knows more about the bunas than Standard Oil Development does." (Ex. S. 23, p. 4861.)

At the same time, Dr. Hopkins remarked that:

"S. O. D. (Standard Oil Development) could get no technical information from Germany concerning the bunas."

Nevertheless, during the period when it did not even have permission to go ahead, Standard conducted negotiations with various companies interested in producing rubber, and the primary purpose of these talks, according to a letter of Mr. Howard's, from which I quote:

"was to convince them of our good faith and our willingness to cooperate with them in order to avoid having them proceed prematurely with an independent development which would make it impossible to bring them into any general plan later." (Ex. S. 24, p. 4863.)

Yet the thing which was holding up development of synthetic rubber in this country was not, according to Mr. Howard:

"\* \* \* the lack of a plan either from Goodyear or ourselves, but the inability of our partners to obtain the permission of their Government to proceed with the development in the United States."

Even after Standard obtained permission from its cartel partners to go ahead with the development in this country, although without the German know-how, Standard only offered licenses which would have the effect, according to their patent attorney, of piling patents on patents in the hands of one centralizing company. Standard was thus attempting to gain for itself the prior experience and knowledge of the rubber companies which had been previously prevented from going ahead with their independent development. I shall not recapitulate my testimony as to the onerous features of the licenses that were offered. Suffice it to say that Mr. Howard, in commenting on the licensing contract offered to the rubber companies, himself stated:

"One cannot blame them for being critical of many of its provisions under these conditions." (Ex. S. 25, p. 4865.)

And Standard admitted in a letter to the Goodrich Company on January 10, 1940:

"Quite frankly, it was our intention that the license would not be a suitable one under which to operate if the licensee expected to go beyond a relatively high-cost specialty product." (Ex. S. 26, p. 4868.)

The chemists of Standard Oil should be given full credit for their development of butyl rubber. The development of butyl rubber promises to be an important factor in our war program.

While Mr. Farish testified that butyl rubber was the outgrowth of research, first cooperatively, then separately, by the German I. G. Standard, I note that the following announcement was made at the Standard's stockholders' meeting of June 4, 1940, by Mr. Farish:

"You may also be interested to know that our Standard Oil Development Company has discovered in its own research laboratories another synthetic rubber product, which we call "Butyl Rubber." The Butyl Rubber is made from petroleum by processes more direct and simple than those required for the production of Buna rubber, and should be appreciably lower in cost. The German product was originally produced from limestone and coal, which were the cheap raw materials for Germany, and while in our own Buna Plant now building at Baton Rouge it will be produced from oil, the process involves several steps. The Butyl Rubber is more nearly a straight petroleum product and although its manufacture involves the most advanced technology, we have solved successfully the primary production problems and already have in operation a semicommercial pilot plant at our Esso Laboratories in Bayway.

"The Buna rubber is in demand at the present time in the United States exclusively for the manufacture of special rubber products such as gasoline hose, where the unique property of Buna in resisting the action of oil is important. The Butyl rubber is not an oil-resistant product and will therefore not be in direct competition with Buna for the Buna specialty markets. The Butyl Rubber has, however, special properties of its own which make it superior to natural rubber for many uses.

"As in the case of the Buna rubber, the commercial development of the Butyl rubber will be in stages, the first stage being the manufacture of relatively small quantities for the specialty market and for commercial testing in tire production. Should it become necessary for the United States to produce synthetic rubber in substitution for a major proportion of imported natural rubber we are in a position to manufacture the Butyl Rubber from petroleum in

any required quantities as rapidly as the necessary plant facilities can be installed." (Ex. S. 27, p. 4868.)

I note also that in a document entitled "Notes for Use in the Preparation of News Release on Paper Entitled 'Butyl Rubber—a New Hydrocarbon Product,'" Standard, in speaking of butyl rubber, stated on September 3, 1940:

"This new process has been worked out by the Esso Laboratories of the Standard Oil Development Company entirely independent of any other synthetic rubber development, either in this country or abroad." (Ex. S. 28, p. 4870.)

As has been previously indicated, up to the time of the consent decree, Standard had not issued any licenses under its butyl patents. Standard apparently intended to keep the butyl rubber process for itself outside the defense program. I quote from an Executive Committee program, dated December 2, 1940:

"Mr. Howard pointed out that progress along the above lines in getting buna rubber manufactured and used in the domestic picture in his opinion would create a *favorable atmosphere in which Jersey interests themselves might proceed with a butyl rubber program.* (Italics supplied)." (Ex. S. 29, p. 4873.)

It is true as Mr. Farish testified that "in 1938 soon after Standard had developed this product, it reported it to the I. G. in the normal way pursuant to the research arrangement between the parties in the field of synthetic rubber produced from oil." Detailed information was sent to I. G. at a time when I. G. itself, because of military expediency, was refusing to make available the know-how of the Buna development to Standard. This information as to the process for manufacturing Butyl was not made available to the United States Government or to anyone else in this country. Mr. Howard may have given this Committee the impression that because the Butyl rubber application was filed in the United States in 1937 and in other countries in 1938, therefore Standard was really not giving the Germans anything which they did not already have. Mr. Howard stated before this Committee:

"There seems to have been an impression created, perhaps by accident, that the manufacture of butyl rubber has been a secret of some kind \* \* \* Beginning with the year 1938, in which we have been accused of disclosing some kind of secret to the Nazis, every major country in the world had in its patent office the secret Butyl formula, that there has been so much foolish talk about in some of the papers."

Mr. Howard must know that Mr. Young, of the Standard Oil Development Company wrote to Mr. Howard on January 20, 1938, prior to the time that full disclosure was made to the German I. G. as follows:

"You will recall that recently Dr. Frolich and his associates have been doing some interesting work in connection with the copolymerization of butadiene and isobutylene. The polymers are sticky, rubbery materials which, I understand, are capable of vulcanization. The question has arisen as to whether this material comes under our Oppanol Agreement, and whether it should be disclosed to I. G."

"You will understand that this material seems to stand halfway between polyisobutylene on the one side and butadiene rubber on the other. So far as I am aware, we have no rights in I. G.'s butadiene rubber business. That may be because they had the rights prior to our agreements, or it may be that the synthetic rubbers are not intended to come under the general fields of our agreements. It would seem to me that it would probably come under the new Chemical Process agreement."

"So far, no one has discussed this development with I. G. and we have not sent them a copy of our case which was filed a few weeks ago. On the other hand, I found the other day that a letter had been sent out by one of my men with a copy to the I. G., mentioning very briefly this subject matter. There is not a sufficient disclosure to tell them a great deal about it, but it may be enough to awaken their curiosity, so that I feel you should know this as soon as possible and that perhaps you might wish to discuss the whole matter on your next European trip." (Ex. S. 30, p. 4875.)

Mr. Howard further must know that on March 9, 1938, Mr. Russell, Vice-president, wrote him about the plan to divulge to I. G. the Butyl information:

"We interpret your cablegram to mean that you wish to present this information to the I. G. so that they may work on it vigorously also. We all of us hope that this can be done without prejudicing Development's position with reference to this particular development. We are all convinced that the development

is a really important one and that ultimately it may make considerable money. We believe it is quite distinct from the I. G. Buna development and is also quite distinct from Vistanex. We have felt that when the development was presented to Jasco we should be in as good a position with regard to this copolymer as the I. G. is on Buna. In order to make sure that we do obtain such a preferred position, we had hoped that its formal presentation to Jasco could be postponed in order to permit us to make the additional advance in the art that we know will result from further active experimental work. In particular, we all of us are extremely anxious to obtain the higher molecular weight copolymers which, according to the data so far assembled; should have tensile strength and other characteristics fully equal to rubber. The fact that we have not yet reached this status in our own experimental work we hope will not militate against our having a final preferred position in this field." (Ex. S. 31, p. 4875.)

Mr. Howard must also know that on March 15, 1938, he wrote Mr. Russell as follows:

"At my meeting with the I. G. gentlemen in Berlin on the Buna question, it developed that very rapid strides were being made in all phases of the Buna development, and there is even a prospect that this development will very soon stand on its own feet economically in competition with natural rubber under manufacturing conditions and costs in the United States. This is not only in the specialty field of high-priced products, but is the main field of tire manufacture. Certain difficulties still exist which prevent our I. G. friends from giving us full technical information and proceeding in the normal manner with the commercial development in the United States. It is to be hoped that these difficulties will be surmounted in the near future, and we here desire to do everything possible to bring about that result.

"In view of the very genuine spirit of cooperation which Dr. ter Meer displayed, I am convinced that it is not only the right thing to do, but the best thing from every standpoint to pass on to them full information on the copolymer at this time. I do not believe we have anything to lose by this which is comparable with the possible benefit to all of our interests." (Ex. S. 32, p. 4876.)

This "full information" which Mr. Howard said it was the "right thing" to give I. G. in view of their genuine spirit of cooperation is not the information available "in every patent office in the country."

But Standard's failure to proceed with a butyl rubber program in this country is more surprising than its delivery to I. G. of information on the butyl process. As early as June 3, 1939, I. G. informed Standard, "We have of course no objection if you want to submit your copolymer (Standard's butyl) to the rubber goods manufacturers in the U. S. A. for experiments." (Ex. S. 33, p. 4876.)

Mr. Howard, on June 15, 1939, in a letter to Messrs. Hopkins and Fisher stated: "You will note that Dr. ter Meer has no objection to our taking up the copolymer with rubber manufacturers." (Ex. S. 34, p. 4877.) Nevertheless, even with this permission, there has been no commercial development of butyl rubber and butyl, up to the time of the consent decree, was kept outside the defense rubber program.

The operating officials and scientists were aware of the great possibilities in butyl and pressed for its full development. On July 28, 1938, E. V. Murphree, Director of Esso Laboratories, wrote Howard: (I quote)

"The data on the properties of the various copolymer compounds indicate that this development is going to be of considerable importance. The copolymer should be considerably cheaper to manufacture than a straight butadiene or blended butadiene polymers, as represented by the Buna's compounds. I think the copolymer work is approaching the stage where we would like to have the assistance, if possible, of some rubber manufacturer to more definitely evaluate the compounds which can be produced." (Ex. S. 35, p. 4877.)

On August 19, 1938, Mr. Murphree wrote Mr. Russell as follows: (I quote)

"Considering the rapid progress which is being made in improving the properties of the copolymer, and considering the raw materials from which it is made, it is my feeling that it represents a more promising material than the I. G. Buna, although it has not been tested nearly as thoroughly. I have written you previously pointing out the desirability of tying up with some rubber company in order to carry this development along more rapidly. I still feel that such an arrangement is very desirable." (Ex. S. 36, p. 4878.)

That was in 1938, but as I testified previously before this committee, a letter dated February 4, 1941, indicates that the Firestone Tire & Rubber Company, U. S. Rubber Company, General Electric Company, Acushnet Process Company, United Carbon Company, Professor Urey of Columbia University and Dr. T. P.

Sager of the National Bureau of Standards were the only persons who had received samples of butyl rubber from the Esso laboratories and that "very little information is given out on the manufacturing process involved." (Ex. S. 37, p. 4879.) Full information had been given to I. G. Farben but, as this committee knows, the representative of the Navy's Bureau of Construction and Repair, who "had been instructed also to look into the manufacturing process" (Ex. S. 9, p. 4846) was not given information relating to the manufacturing process. Standard refused to make samples of butyl available to Standard Oil of Indiana. It refused to supply the British F. A. Hughes & Co. firm in 1941 with butyl samples for experimental purposes.

The delay in butyl development is a warning of the anti-productive habits of cartels. On November 6, 1939, Howard wrote:

"There is a considerable temptation to publicize this butyl rubber development and to seek contact with the rubber companies on it immediately, but a sounder policy apparently is to confine the development to our own organization up to the point of standardized operation of our pilot plant about next January or February. This will give us an opportunity to feel out the whole synthetic rubber situation in the United States with the du Pont Company and with the four leading American rubber manufacturers through our contact with them on the Buna matter. The additional time is also desirable from a patent standpoint." (Ex. S. 38, p. 4879.)

On March 7, 1940, Mr. Howard wrote that he thought that butyl rubber might now be brought into discussions with the rubber companies "although our natural course would be to hold off sometime longer \* \* \*." (Ex. S. 39, p. 4880.)

Contrast this attitude with the attitude of the chemists and the operating men of Standard. Thus H. W. Fisher, Manager of the Standard Commercial Department, on May 5, 1939, wrote Howard (I quote):

"Dr. Frolich and I both concur in the opinion that we have reached a stage in the development of copolymer where it would be very advantageous to be able to establish contact with one or more of the major rubber companies. Phil Young [Standard's patent attorney] advises me and Dr. Frolich concurs that we have filed sufficient patent applications on the manufacture of the material and on the major uses so that we can feel free, from a patent point of view, in presenting this material to outsiders, at least in a limited way." (Ex. S. 40, p. 4881.)

And on June 19, 1939, Mr. Howard was informed by Mr. E. V. Murphee of Standard Oil Development that (I quote):

"The development work on the butadiene copolymer has been carried rather far along, and this material has given evidence of promising application to a variety of uses. Among the uses which show promise are the following:

- "1. Tire treads.
- "2. Inner tubes.
- "3. Steam hose.
- "4. Conveyor belting.
- "5. Tank linings.
- "6. Miscellaneous coverings, such as floor and deck coverings.
- "7. Other miscellaneous uses, such as vibration dampening, gaskets, weather stripping, and the like."

\* \* \* \* \*

"I do feel that the copolymer development would be very greatly accelerated by a suitable arrangement with a rubber manufacturer for determining the application of the product, and from this standpoint wish to recommend that you reconsider the desirability of postponing for two or three months such an arrangement. I also think it may be desirable to make an arrangement with an electric wire and cable manufacturer on the use of copolymer in this field where, at least from laboratory results, it should have real application." (Ex. S. 41, p. 4882.)

Again on June 22, 1939, R. P. Russell, Vice President of Standard Development, wrote Howard (I quote):

"This will refer to our discussion on June 20, 1939, on the subject of copolymer. I have talked this matter over with Messrs. Fisher, Hopkins, and Murphee, and I think we are all agreed on the following:

"1. We ought to be working vigorously with a U. S. tire manufacturer to explore the possibilities of application of our various copolymer for applications in the tire business." (Ex. S. 42, p. 4883.)

And Dr. Hopkins, on October 20, 1939, wrote (I quote):

"I believe, however, that the whole synthetic rubber effort could be accelerated by an increase in technical personnel to carry it along. There is undoubtedly in each department a shortage of men to advance the project as rapidly as is justified by its promising possibilities. The time is so very ripe for a replacement of natural rubber by synthetic rubber in the United States as to make the cost of such increase not significant in comparison with the importance of getting on a commercial basis ahead of the others who are known to be working in the field." (Ex. S. 43, p. 4883.)

#### CARTELS MISLEAD

It is characteristic of cartels that they cover up and mislead. They conduct their business in terms of their own rules, and they regard governments as passing fancies. These cartels have not only hidden their activities from the United States Government but they have also failed to disclose their activities even to the American participants upon the boards of directors of key cartel companies. Any legislation covering cartels must provide for some way of discovering what these undercover cartel activities and controls may be.

So hidden and insidious has been the I. G. Farben cartel influence in this Standard Oil case that Mr. Teagle of the Standard Oil Company was for ten years a director of an I. G. Farben controlled company, and yet testified before the Securities and Exchange Commission in 1938 that he did not know who owned the controlling voting stock in that company. He did not know who owned the voting stock even though a considerable portion of the stock was in his name. Mr. Teagle was asked to go on the board of this company by I. G. Farben. He was kept from resigning from the board, despite his repeated efforts to do so, by I. G. Farben. This company, the American I. G. Company, was itself a large stockholder in Standard Oil and as a matter of fact the 200,000 shares of Standard Oil stock given to I. G. Farben in payment for the hydrogenation monopoly rights found their way into the control of this company. Further, this company had large investments in the stock of I. G. Chemie, organized as a subsidiary of I. G. Farben, and yet Mr. Teagle also testified before the Securities and Exchange Commission in 1938 that he did not know who controlled I. G. Chemie. The record shows that Mr. Teagle was considerably embarrassed by this state of affairs. The cartel control was not only strong enough to hide its existence from Mr. Teagle and the United States Government, but also to keep Mr. Teagle, the president of Standard Oil, upon the board of this I. G. Farben Company against his will.

The importance of American I. G. as an I. G. Farben Cartel Company is shown in its ownership of 50 percent of the stock of American Magnesium Corporation—the company set up as a result of the I. G.-Alcoa Magnesium Cartel. I have already mentioned its ownership of two hundred thousand shares of stock in the Standard Oil Company. American I. G. also was the owner of the General Aniline Company and stood as the representative of I. G. Farben in numerous drug and dye cartels. Mr. Teagle went on the board of this company shortly after its inception in 1929, at the request of Dr. Bosch, then president of the German I. G. (Ex. S. 44, p. 4884). As a matter of fact, five hundred thousand shares of common stock in this company were issued originally to Mr. Teagle (Ex. S. 45, p. 4885). The purpose of the American I. G. was stated by Dr. Bosch before a committee of the German Reichstag in 1930. He stated:

"The establishment of corporations situated in foreign countries proved to be necessary in connection with the extension of the connections of I. G. Farben in foreign countries and in connection with the international negotiations of I. G. Farben. With such a corporation, the I. G. Chemie, in Basle, has been organized in 1928—on April 26, 1929, the American I. G. Chemical Corporation was organized in the United States. This corporation shall serve these purposes in connection with enterprises of the chemical or related interests in the United States and other countries" (Ex. S. 46, p. 4886.)

How did Mr. Teagle happen to have five hundred thousand shares of American I. G. stock listed in his name? I submit herewith a cablegram from Mr. Frank Howard to Teagle, dated May 28, 1930, which reads as follows (I quote):

"In view of the fact that we have repeatedly denied any financial interest in American I. G., it seems to me to be unwise for us to now permit them to include us as stockholders in their original listing which is the object of present transactions. It would serve their purpose to issue this stock to you personally under the same conditions \* \* \*. Will this be agreeable to you as a temporary measure?" (Ex. S. 47, p. 4888).

After the American I. G. Company received the two hundred thousand shares of Standard Oil stock (which it got at \$50.00 a share when the stock was selling at 72½) an attempt was made to keep this ownership "confidential." I refer to a wire dated April 4, 1930, sent by Mr. Howard to Mr. Teagle:

"Schmitz discussed with me yesterday at meeting The Hague the suggestion that chemical company's annual report should refer to interest our company. Schmitz strongly opposes this suggestion as tending to lead inquirers directly towards matter we have taken great precautions to keep confidential" (Ex. S. 48, p. 4888).

As a member of the Board of Directors of American I. G., Mr. Teagle voted against a transaction whereby American I. G. exchanged certain I. G. debentures which it held for shares of stock in I. G. Chemie. In a letter written to Mr. Teagle in 1932 by W. Greif, First Vice President of American I. G., explaining this exchange of I. G. debentures for stock in I. G. Chemie, Mr. Teagle was informed, (I quote):

"I. G. Chemie (i. e. International Company for Chemical Enterprises, Basle, Switzerland), is, as you know, a subsidiary of I. G. Farben, organized in 1928" (Ex. S. 49, p. 4889).

This exchange of securities was in effect an intercorporate transaction, since I. G. Farben controlled both I. G. Chemie and American I. G. American interest in the transaction is shown by the fact that American investors had given twenty-seven million dollars to American I. G. Mr. Mitchell, a fellow member of the Board of Directors, who also voted against the transaction, pointed out to Mr. Teagle that (I quote):

"You and I are in a very embarrassing situation. Whenever transactions are proposed as between the German I. G. and the American I. G. and at such times we must be fully informed."

Mr. Mitchell felt "that no transactions of that nature should be put through the Board except with our affirmative vote. If this attitude on your part and mine is in any way embarrassing to them, I feel they should say so frankly so that we, and Mr. Ford as well, may consider withdrawing from the Board" (Ex. S. 50, p. 4892).

At the end of this statement I attach exhibits dealing more fully with this transaction.<sup>1</sup>

Mr. Mitchell resigned after this transaction, but German I. G. control was so strong that Mr. Teagle was not allowed to do so. Mr. Teagle notified Frank Howard on November 23, 1934, as follows:

"Referring your cable November twenty second Mitchell's retirement and death of Metz and Warburg leaves Weiss and myself as only two active Americans on Board STOP Balance of Board follow instructions received from other side without exercising their own discretion STOP Directors' meetings held very infrequently of late owing to very real difficulty of obtaining quorum STOP Owing to increase in nationalistic feeling everywhere seriously question desirability in friends' interest of indefinite continuance of present set-up STOP My own recommendation would be that at least three outstanding Americans should now be added as Board members and that owing to amount of time each year I am out of city I should resign and E. M. Clark decided to succeed me STOP Bosch dining with me December third you may feel it would be better for me to discuss matter with him than for you to take it up with Schmitz please advise STOP One hundred thirty four thousand shares Jersey stock stands in name of Greuter and Company of Basle balance of holdings in Jersey of something over four hundred thousand shares now in name of American I. G." (Ex. S. 51, p. 4893).

But in response to this cable Mr. Howard wired back. I quote:

"Attempted persuade Schmitz make change suggested American I. G. board and have some support from Von Knieriem but doubt if Schmitz is yet convinced." (Ex. S. 52, p. 4894).

On April 1, 1935, Mr. Teagle tried to resign. He wrote Dr. Bosch, president of I. G., stating,

"It seems to me that the same reasons of policy which led you to ask me to serve and led me to accept in the first instance, now dictate my retirement" (Ex. S. 53, p. 4894).

To this request Mr. Hermann Schmitz replied by suggesting that another "gentleman of your group, perhaps Mr. Clark, would come on the board so that you need not assist all the meetings." (Ex. S. 54, p. 4894).

Mr. Schmitz thought that since the I. G. relationship to Standard "by the

<sup>1</sup> See Arnold Appendix A, *infra* pp. 4925-4932.



shareholding might be published f. i. through the Stock Exchange Commission, we think this would be a reason for you to continue your directorship."

Mr. Teagle replied again pressing his desire to resign. (Ex. S. 55, p. 4895.)

Then in 1918 the Securities and Exchange Commission had a hearing in which it attempted to find out who had the controlling interest in American I. G. I can best describe what happened at that hearing by quoting from a letter of Mr. Frank Howard to Mr. Riedemann, Standard's European representative:

"The Securities & Exchange Commission in the United States has just been investigating the American-I. G. Chemical Company to determine whether or not it is an 'investment trust' within the meaning of the Commission's regulations. In the course of this investigation, they called Mr. Teagle as a witness, and asked him questions along two general lines:

"(1) what was the actual ownership and control of the American-I. G. Chemical Company?

"(2) what was the explanation of certain very peculiar financial transactions reflected on the books of the American-I. G. Chemical Company?

"Mr. Teagle was not able to give them any satisfactory information on either of these points. His apparent lack of any real knowledge of the ownership or business of the Company of which he was one of the Directors, and of which the records indicated he was the owner of 500,000 shares, as reported in the newspapers, created a very unfavourable impression.

"As you know, we have been trying for nearly three years to get Mr. Teagle off the Board of the American-I. G. Chemical Company. As a matter of fact, I thought that he had gotten off the Board at the time Mr. Clark went on, since it was my own suggestion that Mr. Clark should replace him.

"Guy Wellman prepared a memorandum on this whole matter which I was to bring to you, but he was unwilling to release it until Mr. Teagle had approved it. I believe it will probably come in the next mail. I am afraid that one of us, or both us, will have to have some pretty straight talk with Geheimrat Schmitz about this American-I. G. Chemical business. I shall be in Berlin on Monday at the Adlon, and shall endeavor to find out what the Geheimrat's plans are for the next few weeks. I shall also enquire as to Dr. Bosch's whereabouts, since I believe Mr. Teagle feels he has an especial right to turn to him for help on this matter.

"I will write you again from Berlin" (Ex. S. 56, p. 4896).

A memorandum in Mr. Teagle's files states as follows:

"Mr. Teagle as a director was placed in a most embarrassing position at the hearing and also in press releases because he did not know the beneficial ownership of any of the large blocks of American-I. G. shares. To the public, at any rate, it seems impossible that a man in his position would not know something as to who owns the company" (Ex. S. 57, p. 4896).

This concealment from even Mr. Teagle, the president of Standard Oil, of the means by which I. G. Farben was exercising its control over the company of which Mr. Teagle became a director at the request of I. G. Farben is not astonishing in the light of the undercover character of cartel practices. I refer to Mr. Teagle's testimony before the Securities and Exchange Commission and I quote from the record:

"Q. \* \* \* throughout your entire tenure of directorship you say you did not know who the controlling owners of American-I. G. Chemical Corporation were?

"A. That is correct.

"Q. And you still do not know?

"A. That is correct.

"Q. So that leaves us in this situation, does it not, Mr. Teagle—and I would like to discuss that a little—that here was this corporation which controls 16.6 percent of a very substantial chemical company in this country, is that not so?

"A. Yes.

"Q. And the Aniline and the AGFA ANSCO. It also has how many shares of the Standard Oil at the present time, do you know, Mr. Teagle?

"A. Something over 340,000, I think. I do not know how much it is at the present time, but I know at one time it had 312,000.

"Q. And the 312,000 shares of Standard Oil of New Jersey has a market value of approximately how much, would you say, Mr. Teagle?

"A. Well, I do not know what the market closed at yesterday. I did not look at this morning's paper, but around 47 or 48.

"Q. Well, it is approximately \$15,000,000?

"A. That is correct.

\* \* \* \* \*

"Q. And we do not know, and you do not know at the present time, who controls that corporation, is that not so?

"A. That is correct; yes.

"Q. Have you ever made any attempt, Mr. Teagle, to ascertain who were really the beneficial owners of the Class A and Class B stock?

"A. No, sir.

"Commissioner HEALY. When you say you do not know who controls it, Mr. Teagle, it is apparent it is controlled by European interests, is it not?

"The WITNESS. Well, I think that would be a safe assumption.

"Commissioner HEALY. That is about the only assumption you can draw from the list of stockholders.

"The WITNESS. That is correct, certainly.

"By Mr. SCHENKER:

"Q. But precisely who those foreign interests are, if we predicate our conclusion on that assumption, you have never known and still do not know?

"A. That is correct.

"Q. Let me ask you just a general question, Mr. Teagle, and we would like to get the benefit of your experience. Do you consider that a healthy situation?

\* \* \* \* \*

"A. I wonder if you really want to ask me that question. I will put it up to you in this way: The Standard Oil Company of New Jersey, with which I am connected, is, through its subsidiaries, operating in most all of the countries all over the world and I would dislike very much to go on record with a statement here that could be used directly to our disadvantage in other foreign countries. So I am not really in a position to give my opinion" (Ex. S. 58, p. 4898).

Mr. Teagle also testified that he did not know who were the beneficial owners of the 500,000 shares issued to him. I quote (p. 21565 of the Securities and Exchange Commission Investment Trust, American I. G. Chemical Corporation hearing):

"Q. Who asked you to go on the Board, Mr. Teagle, do you remember?

"A. Yes. I think I have already stated that Professor Bosch, Dr. Bosch, asked me in the first instance.

"Q. Now, the record discloses that 500,000 common shares were issued to you. Were you the beneficial owner of those shares?

"A. I wasn't.

"Q. Do you know how it was that those shares got into your name?

"A. No; I do not. All I know is that I had no interest in them whatsoever and they were only in my name a very short space of time, a relatively short space of time" (Ex. S. 59, p. 4900).

At the same Securities and Exchange Commission hearing, Mr. Walter Duisberg, vice president and treasurer of American I. G. and son of the one-time chairman of the Board of I. G. Farben, was unable to tell the Commission who were the beneficial owners of the voting stock of American I. G. Mr. Duisberg submitted a letter from I. G. Farben itself in which I. G. stated, I quote:

"In reply to your favor of July 21, we beg to say that we have no direct or indirect participation either in American I. G. Chemical Corporation or in the other corporations mentioned in your letter" (Ex. S. 60, p. 4900).

This Committee should note that this statement was made by I. G. Farben in the face of Dr. Bosch's report to the Committee of the German Reichstag which I have previously quoted.

At the same hearing Mr. E. A. Schmitz, a director of American I. G. and the brother of Dr. Hermann Schmitz, now president of the board of supervisors of I. G. Farben, was unable to tell the Commission who owned the controlling stock in American I. G. (Ex. S. 61, p. 4900.) Further, Mr. Teagle was unable to tell the Commission who were the controlling stockholders in the I. G. Chemie of Basle which Mr. Greif, as I have previously quoted, referred to, in a letter to Mr. Teagle in 1932, as a subsidiary of I. G. Farben organized in 1928 (Securities and Exchange Commission 21534). I am somewhat surprised, in view of the 1929 cartel arrangement, involving four contracts and the formation of two corporations, to discover that Mr. Teagle at this same hearing apparently testified that the only connection between Standard and I. G. Farben was in an indirect manner whereby Standard and I. G. Farben were both stockholders of Standard I. G. I quote:

"Q. So the only connection that the Standard has is in this indirect manner, where Standard and I. G. Farben are stockholders of Standard I. G., is it not?

"A. That is my understanding of it" (S. E. C. Hearing 21576) (Ex. S. 62, p. 4901).

The memorandum for Mr. Teagle's files which I quoted previously complains of the failure of Schmitz and Duisberg to be "a little more open in their testimony in the informal meetings." I quote:

"Had Duisberg and Schmitz been a little more open in their testimony in the informal meetings and told why some of these transactions were made, I doubt very much if there ever would have been a public hearing and Mr. Teagle dragged into it, and as they were the ones active in the management of the company when the transactions were made, it is hard to believe that they did not know the reason for them. Mr. Teagle, of course, could honestly say that he did not know, as he did not hear of them until long after they had taken place. It might be allowed that these deals on the whole up to the present were very favorable to American I. G., but this alone is no defense. There is little doubt in our minds here that the sale of Standard Oil Company (New Jersey) at \$10 per share was in order to bolster up the assets of the company at the time when the Agfa Ansee had gone sour.

"It seems to us also that the best thing Mr. Teagle can do is to resign from the American I. G. for, while the present inquiry, I believe, is closed, we have certainly not heard the last of it. It may be contended that the S. E. C. is poking into things that are none of its business, but after all, they take the attitude that the company raised \$30,000,000 from the American public and they have a right to know what has been done with this money" (Ex. S. 57, p. 4896).

Mr. Mott, secretary to Mr. Teagle, stated that he felt (I quote from a letter written by Mr. Mott to Mr. Teagle dated February 16, 1938):

"\* \* \* that Duisberg and Schmitz must have been acting on direct instructions from Germany \* \* \* They did not care how much you were embarrassed as long as they thought they were saving their own skins \* \* \* After you had gone on the board and stayed there to oblige them, they should have done everything possible to keep you from being placed in the situation in which you were" (Ex. S. 63, p. 4902).

On March 9, 1938, plans were still being made to find the way for Mr. Teagle to resign. (Ex. S. 64, p. 4902.) On March 11, 1938, Mr. Howard wrote Mr. Teagle indicating that he doubted that Dr. Schmitz could be persuaded to agree voluntarily to Mr. Teagle's resigning from the board.

"Dr. Schmitz is not quite clear what advantage could come from talking over the matter. He knows what happened in Washington, and despite everything, he still believes that his course has been the best course that could be taken and he wishes to continue it" (Ex. S. 65, p. 4903).

Mr. Teagle was finally allowed to resign on March 15, 1939 (Ex. S. 66, p. 4904). I think that all of us can understand the difficult situation in which Mr. Teagle found himself. This record of hidden influence and insidious control is a guide to an understanding of the I. G. Farben-Standard Oil cartel. It is against this setting that we must consider the effect of this cartel on synthetic rubber production in this country, and the testimony of Standard before this Committee.

#### JAPANESE SITUATION

Consider Standard's proposed alliance with the Japanese Mitsui firm.

I testified that "Standard at least was considering a closer relationship between it and the Japanese Mitsui firm in 1939." Mr. Farish attempts to explain this attempted closer relationship as the mere suggestion of a local manager in Yokohama. Mr. Farish also volunteered the information that, "With Japan, our enemy, it is important that the Committee understand that the Japanese never obtained a license for 100-octane gasoline by the hydrogenation process." The documents show that the suggestion of a closer relationship with Mitsui was the suggestion of Standard's Board of Directors. As for licensing the Japanese, Standard's 50% owned subsidiary did license the Japanese to manufacture the chief ingredient for 100-octane aviation gasoline.

The Board of Directors of Standard Oil, as early as 1934, approved a recommendation that Standard enter into formal negotiations for a merger with Mitsui in Japan. As late as 1939 Standard Oil was still pressing for such a merger and the only reason this merger did not go through was because of the opposition of the Shell interests.

A Standard Oil memorandum, dated September 25, 1939 (Ex. S. 67, p. 4904), sent to Mr. H. Wilkinson of the Asiatic Petroleum Company by Mr. P. W. Parker of Standard Oil Company, states:

"In March 1934 Socony and Jersey boards both approved of Standard-Vacuum recommendations to enter into formal negotiations for a merger with Mitsui in Japan.

This memorandum states further:

"A detailed review of our records discloses that on many recurring occasions the opinion within our own group has been that Standard-Vacuum interests would best be served by some association with Mitsui."

The attempt of the cartel to join with Mitsui is clearly set forth in this document:

"The political developments in the east, backed up by the actual results as demonstrated by above figures, undoubtedly had an effect upon Shell's local representative in Japan. When we got the first intimation of the Government's next contemplated step to further rationalize industry in late June 1939 by compulsory pooling of all Japanese companies into one general sales company, and the formation of all distributors into another company, the Shell representative then joined ours in a joint recommendation to approach Mitsui to work out some arrangement which would strengthen our fast dwindling position and salvage what was possible of the combined interests in Japan.

"The matter was discussed in London with Shell at that time, who were just as adamant as ever against any association with Japanese capital.

"While considerable difference of opinion existed in our own group originally on this question, it is fair to state that the developments of the last year, and particularly recent months, has brought about a practically uniform opinion that any future which Standard-Vacuum may have in Japan would be materially strengthened and our life prolonged by a mutually satisfactory association with Japanese capital.

"During the summer this question has been discussed with representatives of other foreign firms, such as General Motors, General Electric, and S. K. F. (Swedish), all of whom have been unanimous in confirming the view that foreign business in the future in Japan would be on a much sounder basis in association with Japanese capital.

"The purpose of this memorandum is to have clearly recorded the views of our group, as we feel the record shows we have consistently deferred to the wishes of our Shell associates against increasing evidence that we were acting contrary to our own best interests so far as the principle involved of protecting our investments was concerned.

"Our group feel this more strongly today than at any time in the past. In our best judgment, even at this late date, the best protection of our own interests indicates that we should at least explore the possibilities and if promising, endeavor to make the best deal we can with Mitsui to salvage what is possible. However, as purely a matter of expediency and fully realizing the present political situation in which our Shell friends find themselves, we are again willing to defer to their wishes and postpone any approach to Mitsui for the time being. We feel that our Shell friends should thoroughly appreciate that we are acting contrary to our own best judgment of the sound business action we should take, and therefore the question is one that we will feel free to re-open for discussion at any time in the future."

The letter transmitting this memorandum states that the memorandum "represents the combined views of Socony-Vacuum, Standard of New Jersey, as well as Standard-Vacuum."

I refer now to Mr. Farish's testimony:

"That with Japan, our enemy, it is important that the Committee understand that the Japanese never obtained a license for 100-octane gasoline by the hydrogenation process."

But Mr. Farish must know that the International Hydro Patents Company, the stock of which is owned fifty per cent by Standard Oil, did grant a license to the Japanese Gasoline K. K., and that this license covered both hydrogenation and polymerization to manufacture iso-octane, which is a blending agent and the chief ingredient used in the manufacture of 100-octane aviation gasoline. Standard Oil received a considerable amount of royalties on this license.

I submit to this Committee a letter dated June 1, 1939, from Mr. W. R. Carlisle, London representative of Standard Oil, to Mr. Ross H. Dickson of Standard Oil in which it is clearly shown that Standard Oils 50% owned subsidiary did grant such a license to the Japanese. (I quote:)

"A license was granted to Japan Gasoline K. K. by Universal Oil Products Company and by I. H. P. The license covered both hydrogenation and polymerization, and U. O. P. and I. H. P. agreed that they would split the total royalties received fifty/fifty. Japan Gasoline K. K. made a payment on account of the

license granted by both parties of \$300,000 for which they had the right to manufacture 300 barrels per day of iso-octane. They have an option, however, which incidentally expires on July 1, 1939, on payment of a total of \$600,000, i. e. \$300,000 over and above the \$300,000 which has already been paid, to receive an exclusive license under the rights of both of these parties for Japan. I. H. P. duly received \$150,000 as its portion of the \$300,000 payment made. The question then arose with I. G. as to what portion of this \$150,000 should be allocated to polymerization and which part to hydrogenation. I. G. is entitled to no portion of the royalties allocated to polymerization. After much discussion between Dr. Ringer of the I. G. and Mr. Nieuwehuys of the I. H. P.—most of these discussions I understand took place in New York—it was agreed that the royalties should be divided fifty-fifty, i. e., \$75,000 allocated to polymerization and \$75,000 to hydrogenation. The payment of \$15,000 which was transmitted with I. H. P.'s letter of May 11th represented 20% of the \$75,000 allocated to the hydrogenation" (Ex. S. 68, p. 4906.)

#### DELIVERIES OF AVIATION GASOLINE IN BRAZIL

As an example of the ramifications of the cartel agreement I showed the Committee how Standard delivered aviation gasoline to the Italian Airline.

The importance to the Axis countries of the shipments of aviation gasoline by Standard Oil to the Italian Airline is brought out clearly by the testimony of Mr. LaVarre before this Committee. I cannot accept Mr. Farish's statement that "we did nothing in that case except cooperate with the State Department." I shall comment later upon the attempt of cartels to show some Government sanction for the steps which they have taken. It is a problem which any legislation providing for a disclosure of cartel agreements must face. The Standard Oil minutes of February 17, 1941, and of March 7, 1941, show that the Standard Oil Executive Committee felt that it was not necessary to inform the State Department of the current developments in Standard shipments of aviation gasoline to the Italian Airline. This Committee need only contrast the testimony of the Assistant Secretary of State, Mr. Berle (I quote) :

"The position they took was that they were going to keep any contracts they had made irrespective of interests of the United States,"

with Mr. Farish's attempt to clothe his company's actions in the immunity of the State Department, and with Mr. Howard's testimony, "no matter was settled with reference to any contract we had with anybody else," and Mr. Howard's other statement "we always did what the Government asked us to without regard to rights." I refer the Committee again to Mr. Berle's testimony that Standard asked the Department of State to guarantee Standard against losses before Standard could accede to the request of the State Department not to deliver gasoline to the German Condor Airline. Mr. Berle stated :

"Mr. Palmer, an attorney for the Standard Oil of New Jersey, and another representative, came into the office, and we had another conference. He said that he had examined the problem of getting indemnification against losses and had discovered that he could not get any. He said that he had taken this up with the Board of Directors and had asked for a statement of policy \* \* \*. He said that the Board of Directors had advised him to notify the Department that under these circumstances it could not agree to the Department's request to breach its contract with Condor."

This is not settling the matter without reference to any contract.

#### German Refinery

Mr. Farish's company not only licensed the Japanese under an aviation gasoline process through the license granted by the 50%-owned subsidiary, but his company actually helped the Germans build their aviation gasoline plant. Mr. Farish felt it important to give this Committee the impression that his company had never licensed the Japanese. He felt, however, that because his company had a German subsidiary there could be no criticism of the construction of an aviation gasoline plant for the Germans as late as 1939. It was the Standard Oil Company of New Jersey and not merely its subsidiary which helped in the construction of the aviation-gasoline plant to be built in Hamburg for Germany. The I. G. Farben representatives were in this Country and the detailed designs for the construction of the plant were discussed in New York. I quote from a memorandum signed by E. J. Gohr, dated August 1, 1939 :

"The I. G. gentlemen plan to leave New York on August 4, and will spend the following week in the South and Indiana, observing various operations. The

following week, beginning August 14, they will return to New York for discussions on the detailed design of the plant" (Ex. S. 69, p. 4907).

Standard apparently was not only willing but anxious to do everything it could to assist. I quote from a letter signed by R. P. Russell, of the Standard Oil Development Company, to Mr. E. V. Murphree, dated August 11, 1939:

"DEAR MURPH: Dr. Ringer, Mr. Keith, and I have been having a number of discussions regarding the process design of the D. A. P. G. catalytic cracking plant. I have assured Dr. Ringer that we are not only willing but anxious to do everything we can to assist the Kellogg and I. G. gentlemen in preparing the process design, and in this connection I have the following recommendations to make:

"1. That you assign one of our process engineers who is familiar with fixed catalyst process design work to sit in with the Kellogg and I. G. gentlemen and give them his best advice on process design matters.

"2. That this process-design man send to you and to me each week a brief weekly letter summarizing the status of the process-design work and pointing out any features which appear doubtful to him. It seems to me very important that both you and I keep as close to the progress of this process-design work as our other duties will permit.

"Very truly yours,

"/s/ R. P. RUSSELL

"R. P. Russell" (Ex. S. 70, p. 4908).

The engineering work for this aviation-gasoline plant was started in New York (as is indicated by a letter dated August 1, 1939, from W. C. Asbury, one of the London representatives for Standard Oil, to Mr. D. L. Harper, Vice President of Standard Oil (Ex. S. 71, p. 4908)); and Standard Oil paid for a part of the expense for the process design of the plant. I quote from a letter from D. L. Harper to R. P. Russell, dated September 13, 1939:

"Replying to your favor of August 24th, I agree with you that Jersey absorb the \$12,000 expense in connection with the process design for the catalytic-cracking section of the D. A. P. G. plant, and would suggest this item be charged against 'S. O. Co. of N. J. General Division General Expense.' This is in accordance with the recommendation of Mr. T. G. McCobb" (Ex. S. 72, p. 4909).

This Committee has heard a great deal about the valuable information and experience which Standard supposedly got from I. G. Farben under this cartel arrangement. I shall point out later the falsehood in these statements. The Committee should recognize, however, that in the construction of the aviation-gasoline plant for the Germans it was the Germans who were obtaining for their military machine Standard's experience and knowledge. The extent to which Standard's experience was used in the construction of this plant is shown by a letter dated July 7, 1939, signed by W. C. Asbury and addressed to R. P. Russell, from which I quote:

"It seems to me that with the drawing up of the design by the Kellogg Company in New York for the D. A. P. G. plant there is very little chance that any experience coming from the I. G. will be used. This is due to the fact that Jersey had worked out a practically complete process for fixed-bed catalyst operation before I. G. exchanged any experience with us" (Ex. S. 73, p. 4909).

#### Synthetic Toluol

I come now to Mr. Farish's testimony as to why Standard Alcohol refused to sell synthetic toluol to the Trojan Powder Company and why the Trojan Powder Company was asked to withdraw its bid to manufacture TNT for the Army. Mr. Farish testified that the Ordnance Department—

"advised us that in form the transaction would be a regular purchase agreement. They would ask for bids on TNT produced from synthetic toluol of petroleum origin and specifications which would result in their getting a bid from the du Pont Company and it would then be up to us to supply du Pont with toluol on the terms agreed on with the Army."

I am unwilling to believe that the Army misused competitive bidding in the manner indicated by Mr. Farish. I agree with Mr. Farish that it would be "worthy of note" if the Ordnance Department of our Government had no money to use in experimental purposes in as vital a thing as toluol. I doubt very much whether the Army, instead of asking for such an appropriation, would engage in a *sub rosa* conspiracy with the Standard Oil Company.

But in connection with Mr. Farish's statement about the toluol conspiracy, there are other matters which must be pointed out to this Committee. Mr. Farish stated:

"The hydroforming process we got from the I. G. in the 1929 agreement."

He further stated:

"The germ of the development came to us in the 1929 contract with the I. G." In fact, repeatedly throughout the testimony of the Standard Oil Company officials is the statement that, through the cartel arrangement with I. G. Farben, Standard acquired aviation gasoline, synthetic toluol, and various synthetic-rubber processes. I shall discuss the synthetic-rubber processes later, but I wish at this point to make it perfectly clear that the germ of synthetic toluol, the hydrogenation process, the hydroforming process and aviation gasoline are no justification whatsoever for the 1929 agreement. In the first place, Standard did not get the hydroforming process from I. G. Farben. It developed the hydroforming process itself, even though it may be argued that the hydroforming process is a form of hydrogenation. In the second place, insofar as Standard received the germ of synthetic toluol, the hydrogenation process, or synthetic gasoline from I. G. Farben, it received them in 1927. I herewith submit to this Committee a photostatic copy of the 1927 agreement, which is signed by Mr. Teagle (Ex. S. 74, p. 4910). I cannot believe that Mr. Farish does not know of the existence of this contract. This 1927 contract is conclusive proof that it was not necessary for Standard to engage in a "full marriage" with I. G. Farben, or to divide world territories, or to divide fields of use, or to engage in other cartel activities in order to gain for this company synthetic toluol, hydrogenation, or synthetic gasoline. The 1927 agreement gave Standard the germ of synthetic toluol and the hydrogenation process, to the extent that Standard can be said to have obtained them from Germany. Standard didn't need the 1929 Cartel Agreement to get these processes. It already had them.

I must refer again to Mr. Howard's statement to Senator Connally:

"No matter is settled with reference to any contract we had with anybody else."

Has Mr. Howard forgotten the memorandum which he sent to Messrs. Teagle and Farish on March 29, 1935, outlining the extent to which the 1929 cartel agreement between I. G. Farben and Standard Oil might hamper Standard from giving to our own Army Air Corps "superior fuels which would put them far ahead of the rest of the world as regards performance of their fighting equipment"? The memorandum states:

"This possibility is, of course, extremely attractive to the Army Air Corps but there is one difficulty involved which Mr. Russell quite frankly discussed. The hydrogenation development originated in Germany and through cooperation all around has now passed into the hands of the oil industry of the entire world, and to a certain extent, into the hands of the foreign chemical industry as well. There is a full and free exchange of technical information between all of the companies and units involved in the hydrogenation development, and this exchange is not only by means of reports but by constant visits of technical men. To cut off these reports and shut our hydrogenation plants against these visitors would be not only a violation of these agreements which would involve us in many difficulties, but would also be tantamount to a confession that we were engaged in some work of special military value which would mean that the plants would become a focal point for espionage. The costs and difficulties of protecting against leakage of information about large commercial operations under such conditions is hard to estimate. It seems that the only practical way to handle this problem is to avoid carrying out the operation of producing 100 octane number aviation gasoline commercially as long as possible. We would, of course, also have to breach our agreements to render full and complete technical reports to all of the companies associated with us (even to the American companies, for fear of leakage). We should also forfeit the advantage in producing at the least cost the best available gasoline for commercial purposes.

"Any program by which the Army Air Corps can obtain their objective of a one or two year start over the rest of the world on this vital matter bristles with difficulties and sacrifices from our standpoint. We will not have to cross the bridge finally until our present experiments are completed. When and if we are able to demonstrate that the hydrogenation plants are capable of turning out an aviation product which with the usual quantity of lead can be brought up to 100 octane number, we shall be faced with the situation mentioned above. To meet the very proper desires of the Air Corps as expressed to us we shall have to violate our agreements and perhaps forfeit the confidence of our associates, both American and foreign, and beyond this we shall either have to avoid any commercial use

of the new method or run the very grave risk of finding that our efforts at secrecy have been abortive" (Ex. S. 75, p. 4916).

Thus Standard met with difficulties in developing aviation gasoline for our own Army because of the cartel agreement. The Committee has already seen how Standard put up an aviation gasoline plant for the Germans.

#### OFFER TO BUY HUNGARIAN PROPERTIES AND FRENCH HYDROGENATION

I stated in my testimony before this committee that I wished particularly "to point out that Standard itself was in a position to benefit economically from its arrangements with the German cartel. An example of the close relationship between I. G. and Standard is the fact that I. G. offered to purchase Standard's Hungarian property in August 1941 for \$24,000,000.00 in gold." Mr. Foley, General Counsel of the Treasury, testified before this committee:

"An approval of this transaction on the part of the Government would have permitted Standard Oil Company to have been preferred by Germany over other American owners of capital investments in Germany and the occupied countries. The proposed transaction may have been even more generous than a preference. Mr. Farish in his testimony indicated that the \$24,000,000 represented a good bit more than the cost of the properties to the Standard Oil Company and that the Standard Oil Company was 'getting something for nothing.'"

Mr. Foley further testified:

"This country had much more to gain in terms of retaining the confidence and goodwill of overrun European peoples and subjugated governments by maintaining the high moral principle of preventing Germany from acquiring or making use of stolen assets than this country was in not permitting the Standard Oil Company to sell its Hungarian property for funds stolen by Germany."

The attempt on the part of Standard to effect an arrangement suggested by I. G. Farben as to the control of hydrogenation patents in the French area is another example of Standard's efforts to use its cartel arrangements with I. G. Farbenindustrie to gain preferences in the occupied countries. I quote from Executive Committee memoranda of February 24, 1941, which stated as follows:

"Mr. Howard reported that, in line with Mr. Crampton expressing at lunch the other day the German I. G.'s keen desire to have France included in the area in which hydrogenation patent rights are reserved to them rather than in the area in which hydrogenation rights are reserved to the Hydrogenation Patents Company, he had reviewed the matter further and found this arrangement could be put into effect smoothly because it appears the I. G. already has completed necessary ground work with Standard Francaise des Petroles and the French Government, so that S. F. P. would be in position to look after both Jersey and Shell interests. Although Shell to date has seemed reluctant, or perhaps under pressure of the British Government has been unable, to entertain favorably this proposal to the extent that their interest in International Hydro Patents is affected, Mr. Howard said he believed matters had reached the point where they now may yield. Committee felt it would be advantageous to effect the arrangement suggested by the I. G." (Ex. S. 76, p. 4918.)

I submit further to this committee a cable dated March 11, 1941, signed by Frank Howard and sent to I. G. Farben, in which the following is stated:

"On Jacobson return next week was to telegraph you further confirmation that French hydrogenation matters are in your hands." (Ex. S. 77, p. 4918.)

Mr. Farish explained to this committee that prior to the outbreak of the European war discussions were going on in France between the International Hydrogenation Patents Company of the Hague and French groups for a license for one or more coal and tar hydrogenation plants in France.

"When the Germans took Holland they put a German commissaire in charge of the business of the I. H. P. \* \* \* there were discussions as to whether it might be agreeable to us, in view of whatever equitable interest we might claim in the seized Dutch Company, to permit the I. G. to take charge of these negotiations. The alternative would have been to leave them in the hands of the German commissaire controlling the Dutch Company. This alternative did not appeal to us."

I refer Mr. Farish to Mr. Foley's statement that—

"Germany wanted to purchase the Standard Oil properties in Hungary as a part of its program to acquire through so-called legal methods complete economic domination and control of Europe. For this Government to have approved the proposed sale of Standard's Hungarian oil properties to Germany would not merely have facilitated Germany's program of economic domination of Europe, but would



have been tantamount to an approval of Germany's economic new order in Europe."

It appears that, in connection with the hydrogenation rights in France, Standard was apparently willing to further the German program of economic domination of Europe. As in the proposed Hungarian sale, Standard apparently thought it could get preferential treatment because of its continuing relationship with I. G. Farben.

The strange relationship between Standard and I. G. accounts, I suppose, for the request from I. G. to Standard after the war started that I. G. file French and British patent applications in Standard's name. I quote from a letter dated March 29, 1940, from I. G. to Standard—I. G. in New York:

"In a number of cases we have recently proposed to you that we file French and British applications in your name. Similar cases will, no doubt, arise in the future.

"According to the French practice it is absolutely necessary that the Power of Attorney is filed together with the application. Accordingly, our French patent agent must have the necessary Power before he can file the case. The situation is somewhat similar in Great Britain.

"In view of the long time which the mails between the United States and Europe now take it would therefore greatly facilitate our work on your behalf if you would kindly let us have a number of blank Powers of Attorney for cases to be filed in your name. We are enclosing herewith 20 blank forms of French powers and also 15 forms each for main applications and applications for patents of addition in Great Britain and ask you to sign the documents. You would oblige by returning the papers to us at the earliest possible moment preferably by air mail so as to avoid any further delay in the filing of the French cases." (Ex. S. 78, p. 4919.)

On April 19, 1940, Standard-I. G. Farben replied to I. G. (I quote):

"Referring to your letter of March 29th, we send you herewith powers of attorney for France and Great Britain, made out by William E. Currie. In explanation of this change from our usual practice of executing powers of attorney, the following is noted:

"You will recall that on November 15, 1939, you wrote Mr. Howard, stating that you had recently supplied him with certain assignments executed by I. G. and intended to be used for recording title in Standard-I. G. and Jasco. It is our understanding that Mr. Howard arranged with you that these assignments (which did not contain the name of the assignee) should be completed according to his discretion. It has now been decided that assignments of the Standard-I. G. cases should be made out to William E. Currie, as assignee, in the same manner as indicated on the powers of attorney sent you herewith." (Ex. S. 79, p. 4919.)

On March 17, 1941, I. G. wrote to Mr. Currie, patent attorney for Standard:

"In compliance with the request contained in your cable A. C. 18 we have prepared new assignments in favor of Mr. Currie and enclosed herewith we are now mailing the following documents via Japan: Assignments for Australia, Canada, Great Britain, British India, Union of South Africa, and Trinidad" (Ex. S. 80, p. 4921.)

I am at a loss to know why after the Hague memorandum when we are told that the relationship between I. G. and Standard had been reduced to a simple question of money payments, I. G. should be handling patent applications in the name of Standard in countries with which Germany was already at war. Standard-I. G. sent the powers of attorney to I. G. at a time when Standard was worried about its correspondence with I. G. being picked up by the British censor. Thus on February 21, 1940, a Standard letter to Mr. Howard states (I quote):

"One of our company auditors presently auditing Development's books requested permission to confirm with I. G. F. our loan to them of £37,500 which is on deposit with the Hambros Bank Limited.

"Because of certain circumstances about which I may not be familiar, I hesitate to grant permission for him to write to I. G. F. without your approval. Will you advise if you feel this matter should be confirmed with I. G. F." (Ex. S. 81, p. 4923.)

And Mr. Howard replied on February 28, 1940 (I quote):

"I would think it would be better for our auditors not to write the I. G. F. concerning the matter brought up in your letter of February 21st.

"Our file of telegrams on this subject is open to the auditors and represents all the record there is on the matter.

"We do not know of any certain channel by which letter communications can be passed back and forth to Germany at the present time. An attempt to communicate with the I. G. F. by letter would probably be unsuccessful and would perhaps invite reexamination of this whole matter by another department of the British government." (Ex. S. 82, p. 4924.)

On March 28, 1940, Mr. Howard was asked (I quote) :

"Under the contract procedure which we set up in July 1938, we have been sending to Mr. Carlisle copies of printed agreements relating to Hydrogenation, cracking, polymerization, and any I. G. connection and agreements relating to European patent rights."

"Due to the censorship of mail to Great Britain, we are wondering whether you would not like to advise us whether we should continue the above procedure or modify it. At the present time, the S. I. G. Co.-U. S. A. C. Agreement Interpretation is ready to go out and on talking with Mr. Currie, he felt that we should get your opinion whether we should continue sending copies of the above class of agreements to Mr. Carlisle."

"Will you please consider this matter and let us have your advice? We will not send anything further to Mr. Carlisle until we hear from you."

Very truly yours,

(S) ROSS H. DICKSON." (Ex. S. 83, p. 4924.)

And Mr. Howard noted on the bottom of this letter :

"Original returned to RHD with notation 'Correct. Do not send to England any copies of agreements or letters with Germans. F. A. H.'"

As Standard letter dated June 7, 1940, states (I quote) :

"I realize that the cable in which I. G. definitely agrees to the termination of the Net Expense Agreement was addressed to Chemnyco but I doubt that we should try to obtain anything more direct at the present time since any communication in that respect might be picked up by the British censorship and complicate Mr. Carlisle's Jasco difficulties in London." (Ex. S. 84, p. 4924.)

This is a story of a cartel in action. It is not a service to this country to hide the facts, to mislead or to cover up. Independent enterprise is delayed and frustrated by these cartels. Our ability to produce is cut short. The same basic story can be told in magnesium, aluminum, tungsten carbide, drugs, dyestuffs, and a variety of other materials vital for the war. We cannot wait until the end of the war to put an end to these cartels. If we would have strength in war and security in peace we must solve this problem now.

#### ARNOLD EXHIBIT A

STANDARD OIL COMPANY OF NEW JERSEY,  
New York, N. Y., April 14, 1942.

DEAR CUSTOMER: Charges of an extremely serious nature have recently been leveled at the parent company of the Esso Marketers, the Standard Oil Company (N. J.), by witnesses appearing before the United States Senate Committee Investigating the National Defense Program (Truman Committee). By all the means at their command these witnesses have endeavored to convince both the Truman Committee and the public, through the press, that our national lack of synthetic rubber results from disloyal actions upon the part of the Standard Oil Company (N. J.).

As one of our customers, you undoubtedly wish to know what we have to say about these charges. On our part, we want you to know what we have to say, for we are proud of the part we have played in the development of synthetic rubber for our country.

We are proud that a research project we pursued through twelve years and at a cost of many millions of dollars so succeeded that we can defy the Japanese attempt to cripple us by cutting off our supply of natural rubber. We can defy the Japanese because the United States can make all of the synthetic rubber it needs. We can only be limited in how much we make by how much we are willing to invest in the necessary plants.

In spite of our assurance that this is true, here are some questions you may have about our part in the development of synthetic rubber. We answer them here.

Question: Have Standard Oil or its officers been disloyal to the United States in even the slightest respect?

Answer: Flatly, and without equivocation, they have NOT been disloyal to the United States. Any suggestion that they have arises from misinterpretation or misunderstanding of the operation and effects of an agreement made by us in 1929 with I. G. Farbenindustrie, a German chemical company. Basically, this arrangement provided for the purchase of fundamental hydrogenation patents and the exchange of technical information and patents in certain fields of chemistry. By this agreement we received from I. G. Farbenindustrie information on their own development of synthetic rubber up to January 1, 1940. We were not given information on the synthetic rubber program which the Hitler government sponsored. We gave the Germans information on our technical developments up to January 1, 1940, but we did not give the Germans any information on our U. S. Government-sponsored toluol development. In other words, our arrangements with I. G. did not operate in instances where either government was involved. All exchange of information whatsoever was discontinued on January 1, 1940, nearly two years before this nation declared war upon Germany. The end result of this arrangement with I. G., as far as synthetic rubber is concerned, is that the United States knows how to make synthetic rubber and has known how for at least two years.

Question: Is it true that a letter written by a Standard Oil representative in October 1939, indicated that Standard Oil and the German company, I. G., would endeavor to conduct business as usual, even if the United States entered the war?

Answer: This is not true. A Truman Committee witness referred to a letter written by a Standard Oil representative in October 1939, reporting the results of a revision of our arrangements with I. G.—a revision required by the fact that Germany had gone to war with France and Great Britain. The witness quoted one paragraph from this five-page letter and implied that corporate interests had been placed above loyalty to the United States. This implication is without foundation. Testifying before the Truman Committee, W. S. Farish, President of Standard Oil (N. J.) said, "By the rearrangements made in 1939, therefore, the entire contract relations between the parties became a simple question of money payments. So long as America remained at peace, these money payments were to be made to the account of I. G. in a New York bank, subject, of course, to the exchange control of the U. S. Treasury Department. If the United States went to war, the same money would be paid directly to the U. S. Alien Property Custodian. There would no longer be any joint management or joint operations, and Standard would control everything (i. e. all patents involved) in the United States, France, and England. These are the arrangements, and the only arrangements, which we ever made or contemplated in connection with the readjustment of the 1929 contracts."

Question: Were the arrangements between Standard Oil and I. G. Farbenindustrie secret arrangements?

Answer: Positively not. The fact that the 1929 arrangement was made between us and I. G. Farbenindustrie was published by the press in the United States in 1929. The necessity for revision of these arrangements in 1939 was known to representatives of the State Department. The negotiator of the rearrangements, in fact, suggested that a member of the American Legation Staff at The Hague, Holland, sit in on the negotiations, but the authorities felt this was not necessary. Permission was obtained from our State Department to have papers relating to the negotiations carried between Berlin and Paris by the State Department's own courier.

Question: Did Standard Oil delay, retard, or stifle the development of synthetic rubber in the United States?

Answer: Any such suggestion is without a shadow of foundation. Three years ago, in January 1939, and nine months prior to Germany's attack on Poland, representatives of Standard Oil sought out and called upon the U. S. Army and Navy Munitions Board and informed it concerning Standard's synthetic rubber activities. Samples of three different synthetic rubbers were left with the Board, along with full facts as to the properties of these rubbers, as learned both from I. G. and by Standard in its own research. Subsequently, six other government agencies were similarly informed.

Question: If Standard Oil is so confident that it did the right things in synthetic rubber, why did it sign a consent decree, and accept fines of \$50,000 in the antitrust proceedings that the Government started against it?

Answer: The antitrust suit raised issues quite apart from those which have been argued before the Truman Committee. The Government's suit did not involve the question of hindering the production of synthetic rubber in the United

States. That charge originally was in the Government's complaint, but Standard Oil refused to sign a consent-decree until that charge had been removed. It was removed and the decree signed. Nevertheless, the same charge was repeated by a Truman Committee witness, and we took issue and will always take issue, for it is untrue. The Government's suit was based solely upon alleged violation of the Sherman Act. Whether the arrangements made by Standard Oil with I. G. did or did not fall within the limitations of the antitrust law, they did contribute greatly to the advance of American industry, and proved to be indispensable for the war effort.

Question. When Standard Oil says it gave information on synthetic rubber to the U. S. Army and Navy War Munitions Board, as well as to other government agencies, does it mean that it told in detail how the various synthetic rubbers were made?

Answer. No; Standard Oil did not describe manufacturing details. And at no time did any branch of the United States Government ask us for details on the manufacture of synthetic rubber. As a matter of fact, it was neither necessary for us to describe the details or for the Government to ask us. The method of manufacture of buna rubber had been adequately disclosed in patent information filed in the United States and other countries by the Germans. Patent information on our own development, butyl rubber, also was filed in the United States and principal countries of the world in 1937 and 1938. The first attempt to make buna rubber commercially was in accordance with the patent information. The first attempt was successful—a positive confirmation of the fact that the patent information was both accurate and complete. The reason government agencies did not ask for process details, or, as far as we know, consult the U. S. Government patent files, was that knowledge of how the rubber was made had no bearing upon its usefulness.

Question. Is it true that Standard Oil gave I. G. technical information about butyl rubber which Standard had developed in this country?

Answer. It is true that this was done in 1938 under the contract with I. G. Farbenindustrie and while our government was maintaining friendly relations with Germany. However, this information was obviously of no value to Hitler, because the main raw material for butyl rubber is isobutylene, which comes from oil refining and is not available in Germany in the necessary large quantities. If it were available, first use for it would be to make 100-octane gasoline, which the Germans never were able to make on a large scale for lack of the same type of raw material. Germany received no additional information on butyl rubber after January 1940.

Question. Exactly what advantages did Standard Oil gain for this country from its contract with I. G.?

Answer. Three outstanding advantages were gained. These were—

1. *Synthetic Rubber (Buna N, Buna S, and Butyl).*—By virtue of the 1929 agreement we started work on German buna rubber in the United States in 1931, and when we acquired full control of the process in 1939 we had a flying start which has permitted us to give invaluable help to the Government, the rubber companies, and the oil companies in establishing the new rubber industry in the United States. While butyl rubber is a purely American development, it resulted from our experiments with another product we had obtained from I. G.

2. *100-Octane Aviation Gasoline.*—This is the gasoline which gives our aircraft 25 to 30 percent more power than Hitler's aircraft. The first process for making this product was developed from information obtained through the I. G. contract. As a result of our being able to produce this product, American aircraft engine designers got a head start on the rest of the world in developing engines to use this more powerful gasoline.

3. *Synthetic Toluol.*—This is, perhaps, the one product most essential to successful warfare. Toluol is the main ingredient of TNT, the basic military explosive. Ordinarily, toluol is a byproduct of making coke. Wartime requirements far exceed any possible supply from this source. Information which Standard Oil obtained through its arrangement with I. G. provided the "seed" from which our technologists developed synthetic toluol made from petroleum. This development was called to the attention of the U. S. Army in 1939 and experimental production requested by the Army resulted in the Ordnance Department of the Army arranging with one of our affiliates to erect a synthetic toluol plant. Before this plant went into production in 1941 the toluol production of this country was 30,000,000 gallons per year, not all of which was available for TNT. The new plant raised production to 60,000,000

gallons a year and more than doubled the toluol available for TNT in the United States. The Assistant Chief of Ordnance of the U. S. Army is reliably reported as saying that without synthetic toluol, production of TNT would be 20 percent of its present rate. This indicates that four out of every five bombs dropped on the enemy by our air forces will carry TNT made possible by this synthetic toluol development.

Question. Did Standard Oil tell I. G. about its synthetic toluol development and thereby give Hitler a new means of making TNT?

Answer. No. We did not tell I. G. about toluol.

Question. If Standard Oil knew how to make tire rubber from petroleum, why didn't it go ahead and make it?

Answer. Because synthetic rubber did not and still does not equal natural rubber in quality, and because the cost of producing synthetic rubber on a commercial basis would place it at a disadvantage in competition with natural rubber, the actual cost of which is from 5 to 10 cents a pound, though it has sold in recent years for 15 to 20 cents a pound. The cost (not price) of buna rubber produced on a large scale is estimated at from 20 to 30 cents a pound. The cost (not price) of butyl rubber produced on a large scale is estimated at from 12 to 15 cents a pound. While it might appear that butyl rubber had some chance of competing with natural rubber on price, it could not compete in quality—at least as far as it has been developed. The latest butyl rubber tire would give about 10,000 miles of service if not run at more than 35 miles per hour. Certainly, no motorist would have been interested in buying a butyl-rubber tire before Pearl Harbor.

Question. Did Standard Oil make any synthetic rubber at all?

Answer. Yes. Various synthetic rubbers are particularly suitable for special uses (excluding tires), and consumers will pay a premium for their superior quality. Prior to Pearl Harbor, Standard Oil had appropriated \$12,000,000 of its own money for construction of various synthetic-rubber and raw-material plants having a total capacity of 20,000 tons a year.

Question. Why didn't Standard Oil go ahead after Pearl Harbor and build enough plants to take care of all of the rubber requirements of the Nation?

Answer. To do so would require the investment of nearly \$800,000,000. No private enterprise could make this investment to produce a product which, according to present prospects, will not be able to compete with natural rubber after the war. Only the Government can finance such a venture and only the Government can keep it in operation.

Question. Did Standard Oil recommend, prior to Pearl Harbor, that the Government finance plants for synthetic rubber?

Answer. Emphatically, yes. We recommended in July 1940 that the Government undertake the construction of synthetic-rubber plants which would produce 100,000 tons per year.

Question. Could the shortage of synthetic rubber have been absolutely prevented by action of either private companies or the Government before Pearl Harbor?

Answer. Considering the situation as a whole, and the divided opinion of the American public, the best that could have been done before Pearl Harbor would have been to have had in operation a limited production, such as the 100,000-ton program we recommended to the Government. This would have produced sufficient rubber so that the various rubber companies would have had extended experience in the compounding and building of tires from synthetic rubber. The knowledge of the war situation in the Far East was not sufficient to justify either the Government or private industry spending, prior to Pearl Harbor, upward of \$800,000,000, which would have been necessary to make the country completely independent of natural rubber.

Question. Now that we have to rely on synthetic rubber, will Standard Oil make a lot of money out of it because it holds the patents?

Answer. No. Last December we made an agreement with the Government whereby we were to receive a royalty amounting to 2½ cents on a \$15 buna-rubber tire. By the recent consent decree which we signed, even this small royalty was eliminated for the duration of the war. The same situation applies to our butyl rubber.

Question. Is it true that Standard Oil sold gasoline to Lati and Condor, the Axis air lines in Brazil, against the instructions of the United States State Department?

Answer. Up until April 1941 we handled our Brazilian business in the ordinary way, keeping the American Embassy fully advised. Beginning in April 1941, Standard Oil Company of Brazil made deliveries to such lines only under the

instructions of the American Embassy in Brazil in accordance with the policy of the State Department. In October 1941, when the State Department requested that deliveries to the Condor be stopped, the liability of Standard Oil Company of Brazil to Condor for breach of contract was pointed out. The threat made by the State Department to blacklist the Standard Oil Company of Brazil put that Company under compulsion, thus giving it a defense against any suit which Condor might bring. Standard Oil Company of Brazil was then advised to cease deliveries. The U. S. Embassy at Rio objected to this course and took the matter up with the State Department, with the result that limited deliveries continued under the instructions of the U. S. Embassy at Rio until stopped at the Ambassador's direction in December.

Question: Did Standard Oil violate any law by making agreements for exchange of information with I. G.?

Answer: No; and no such charge has ever been made by any responsible person. It has been common practice for American companies to make agreements with foreign companies by which the fruits of scientific development throughout the world could be brought to the United States. The question of legality, however, hinges entirely upon the detailed patent problems which grow out of such exchanges. Regardless of this question, upon which there are sharp differences of opinion, the United States at the beginning of this war was in a much stronger position in terms of chemical resources than at the beginning of the last war simply by virtue of American enterprise, which combed the world for scientific knowledge. When we entered the first World War many foreign companies, notably those in Germany, held monopolies on developments and processes which we needed, but from which we were cut off. That could not happen this time. Referring specifically to rubber, we "brought home the bacon." Some quarrel with the way it was wrapped up. Nevertheless it is here, and it is under American, not German, control.

Question: Why did an oil company, such as Standard Oil, take such an interest in synthetic rubber?

Answer: Standard Oil had a natural interest for two reasons. First, Standard Oil carries on a continuous effort in its laboratories to improve existing petroleum products and to find new petroleum products which will contribute to both our industrial progress and to our comfort. Second, Standard Oil's livelihood depends chiefly upon the operation of motor vehicles. Tires are essential to the continued use of these vehicles; hence rubber for tires is of direct concern to us. We would, therefore, be among the first to want to help, not hinder, the solution of the rubber shortage which now threatens to immobilize more and more of the nation's motor vehicles as the war progresses.

No one regrets any more than we that steps were not taken prior to Pearl Harbor to prepare the country in some real measure for the loss of natural rubber. Yet we cannot accept, or even share, the responsibility for such steps not being taken.

We did not foresee Pearl Harbor, but for two years before we tried to foster a government program which would meet such an emergency if it did happen.

At a time when national unity should be a guiding force, affecting all of us, the necessity of taking issue, as we have had to do here, is a most unfortunate necessity. You may rest assured, however, that our nation can have and will have a synthetic-rubber industry. Progress toward this end is being made rapidly under the supervision of our Government and with our full cooperation.

Again, we say, we are proud of the part we have played in making synthetic rubber available to our nation. We make no apologies for having developed a new national asset out of a natural resource. Nor do we ask for applause. We undertook a job for ourselves in trying to make rubber out of petroleum. We succeeded, and we ask that you accept the accomplishment of the fact and trust the sincerity of our intent and the integrity of our purpose.

Sincerely yours,

R. T. HASLAM, *Vice President*

EXHIBITS ATTACHED TO SUPPLEMENTAL STATEMENT OF THURMAN W. ARNOLD,  
ASSISTANT ATTORNEY GENERAL

ARNOLD EXHIBIT No. 1

OCTOBER 12, 1939.

Report on European trip.

Mr. W. S. FARISH,  
30 Rockefeller Plaza.

DEAR MR. FARISH: I left New York on the Clipper on August 16th with the intention of having a brief holiday in France and spending the month of September on business matters in Europe. The most important item of business was the consolidation of the I. R. P./Universal/Gasoline Products/Kellogg agencies for dealing with foreign patent rights in accordance with the plan worked out in the Long Beach meetings. In addition, I had the usual grist of contract and financial questions with the Shell and I. G. companies. Messrs. Carlisle and Asbury met me in Paris on August 21st, and after reviewing the Long Beach agreement with me, they undertook to make the necessary preliminary studies during my holiday. I left for Vichy on August 22nd. Almost immediately after my arrival it appeared that war could not be avoided, and I therefore telegraphed you for instructions. Mr. Harden replied in your absence, agreeing with my suggestion that it probably would be best for me to remain and do what could be done, even at the risk of considerable delay in my return.

I stayed in France until September 17th—a small part of the time in Vichy, but mainly in Paris—being principally occupied during this time on various aspects of the French aviation supply problem. When these matters seemed on their way to a satisfactory solution I was able, through the kindness of M. de Monzie, the Minister concerned, to obtain permission to go to England at once. (Such permits were then normally obtainable only after two weeks' delay.) In England I met by appointment the Royal Dutch gentlemen from Holland and after some days of discussion with them and with the Anglo-Iranian people, a general agreement was reached on the necessary changes in our relations with the I. G., in view of the state of war. (It may here be noted that the position of the Royal Dutch Shell group is that it is essentially British, and the activities of its Dutch as well as of its American components must conform to this view.) I also had several meetings with the representatives of the Air Ministry, and endeavored to assist them in coordinating their program with the French program of aviation supplies.

In view of my close association with these supply problems, both in France and England, I was somewhat concerned about the impression which would be created when it was discovered that I had left these discussions to undertake discussions in Holland with Germans interested in the same problems. Both for this reason, and because I required help to obtain the necessary permission to go to Holland, I called on the counselor of our Embassy in London and explained the situation to him. He was extremely concerned about the matter, and very doubtful whether the Embassy could permit me to proceed with my plans. I had the impression at one stage that they were contemplating calling in my passport. After discussions with the Ambassador, however, the situation was cleared completely. It was agreed that I was entirely within my rights, and furthermore, that the Embassy would not only permit me to go, but would take the necessary steps to explain the situation to the British Foreign Office, in order to relieve me of all embarrassment and to facilitate my obtaining the required permits for leaving and reentering England. The gentlemen in the Air Ministry, who I think had a suspicion of the nature of my activities in Holland, also very kindly offered to assist me in reentering England, if the Foreign Office should make any difficulties about my return, since they stated they wanted to have a final discussion with me before I left for the U. S. In appreciation of this evidence of confidence, I offered, through the Embassy, to conduct all of my discussions in Holland in the presence of a member of the staff of the American Legation at The Hague. This was not required of me, however.

Pursuant to these arrangements I was able to keep my appointments in Holland, where I had three days of discussion with the representatives of the I. G. They delivered to me assignments of some 2,000 foreign patents and we did our best to work out complete plans for a *modus vivendi* which would operate through the term of the war, whether or not the U. S. came in. All of the arrangements could not be completed, but it is hoped that enough has been done to permit closing the most important uncompleted points by cable. It is difficult to visualize

as yet just how successful we shall be in maintaining our relations through this period without personal contacts.

One serious difficulty which developed was the fact that the French patent assignments were not legally complete because they lacked the certificate of the French Consulate in Berlin. Through my contact with the American Minister in The Hague I learned that our own Consulate had taken over the duties of the French Consulate. The French Ambassador at The Hague agreed that our German consular certificate would be accepted instead of the French consular certificate. At my request, the American minister at The Hague telegraphed Washington explaining this situation and asking permission to have the papers, after certification in Berlin by our Consulate, returned directly to Paris by the diplomatic carrier, in order to avoid the difficulties and delays which would otherwise arise. Fortunately, the Department of State had in its files at Washington a full statement of our relations with the I. G. on these patent matters, which I had worked out with Ambassador Gibson in Berlin in September of 1933 and which had been forwarded by him to Washington. The necessary permission from the State Department was therefore obtained in about three days.

I returned to London through Belgium to minimize the length of the North Sea crossing.

On my return to London I had some further discussions with the Anglo-Iranian and Shell people concerning the I. G. patent problems, and also a final meeting with the gentlemen of the Air Ministry.

I returned from Foynes, Ireland, on October 9th after a delay of five days, awaiting departure of the Clipper. The life insurance premium quoted in London for this last voyage of the northern Clipper was 2%.

The various specific items of business dealt with during my trip are being handled in the usual way with the persons directly concerned, or by separate memoranda. There seems to be no appropriate place except this letter however, to bring up some matters of general interest.

The first is the position of our American personnel in England, France, and Holland. First, as to France, Mr. Crampton's family is well taken care of in Le Touquet in their summer house, and the only inconvenience they are apt to suffer is that they will probably have physicians or officers quartered in their home, since all hotels and available living space are required in Le Touquet for the large hospital services which have been centered there. Because of its remoteness, entirely residential character, and military use exclusively as a hospital center, there is no reason to believe that Le Touquet will suffer during the war. Messrs. Crampton and Irish are themselves remaining in Paris for the present. Messrs. Young and Meade are still living with their families adjacent to Port Jerome. This location is certainly not the best for the families.

In London, so far as I could learn, all of the families and wives of all the American group in the International Association, save Mrs. White, were able to get to the U. S. before or during the first week of the war. The men all have satisfactory suburban locations, although they are for the present spending much of their time in their usual London quarters. The strain of the initial weeks was rather bad, but the continued quiet has relieved much of this, and the health and spirits of the entire American personnel are quite good.

The principal source of worry of the American personnel, both in France and England, at the moment is the ultimate effect of the finance control of those countries on them, coupled with the natural fear that their business careers will be adversely affected by the war, whether it continues or not. The prospect of having no job left in Europe, or a relatively unimportant one, and the alternative of surrendering their American savings and income or deserting their jobs to escape the application of finance control, makes a rather disagreeable picture. Nevertheless, no one is unduly pessimistic, and although their business, like all of the business of the belligerent countries, is now being conducted at an unbelievably low level of efficiency, everyone is carrying on cheerfully with whatever work he can do.

There is a decided state of strain in Holland, although few people have deserted the country. Our personnel and their wives are all still on duty, although it was seen probable that Mr. Bolton, who is British, would have to be on active service.

In general, the only practical way of communication between the various European countries which is still left is by telegram. Telephone is prohibited, save for limited communication outward from France on ministerial priority order. The mails are not only delayed by the censorship, which, of course, applies to telegrams also, but are further delayed by the uncertainties of rail and sea communication. It often requires two weeks for a letter to reach Paris from London, or vice versa.



Travel is attended with all sorts of difficulties and delays and some real peril as regards the crossing of the North Sea and the Channel. Travel permits require from one to three weeks to obtain, and then only on good showing of real necessity and national interest. Train service on the Continent, even in Holland and Belgium, is still disorganized and under military control. Rail journeys that should require a few hours take an entire day. Channel and North Sea crossings are under the jurisdiction of the British Admiralty. Although the boats are fairly regular, they have no scheduled departure times and they move only in daylight. A daily air service has just opened between London and Paris but up to this time it is restricted to government employees or other civilians traveling on government business.

Under the above conditions it is not possible even to attempt any coordination or central control of our European operations from London or any other point in Europe. So far as I know, during my stay in Europe, which covered the first six weeks of the war, there was not a single executive of any of the operating companies who moved out of his own country, nor any of the executives of the International Association group who attempted to make any direct contacts with the European markets, save on certain supply and shipping problems covered by telegraph.

I find myself in this report in the same difficulty which Ambassador Kennedy stated he found himself in, in trying to inform Washington on the situation. It is impossible in any report to really reflect the extent to which the industry and life of Europe has been affected by the threat of "total warfare," and by the universal reactions to this imminent threat.

From the standpoint of the Standard Oil Company (New Jersey) the most important thing which I would like to bring out is the seriousness of the financial and economic position. Europe has already suffered injury to its economic life from which recovery is going to be terribly slow and difficult. The first place where the shoe is pinching already is the institution of complete financial controls in the belligerent countries, the effect of which will be to limit to the barest necessities of military and industrial life the purchases of these countries which must be paid for in foreign exchange. Beyond this immediate effect, whether the war continues or not, there will be the result that the productive power of the belligerent countries for exportable goods is so seriously affected that this difficulty in securing foreign exchange will become at least a semi-permanent phenomenon, controlling all of their buying habits and internal life. The first effect will be that the oil consumption of the European markets may be materially reduced, or at least held far below the former rate of increase, for years to come. The second effect is that we shall be at a disadvantage as compared with our principal competitors, Anglo-Iranian and Shell, in supplying the military and commercial market which does exist, because they can utilize payment for their goods in sterling to a greater extent than ourselves.

We are apparently facing a real turning point in our foreign business. I discussed this matter at some length with the gentlemen in London, and I believe we are all in absolute agreement that the Jersey company must now reexamine its whole foreign business picture, with a view to seeing how it can best orient itself to meet the problem of holding its own in impoverished markets, with very difficult exchange problems to meet, and against the increasing weight of more favorably located competition, and the probability of increasing government interference.

In this connection I commend to your consideration Mr. Porters' report to Mr. Crane of June 23rd.

The only ray of light discernible in this dark picture of the future of the European markets is in the possibility that necessity may drive Europe to the final adoption of some plan of federation, involving removal of customs barriers and unified industrial, financial, and foreign policies. There is quite a little talk on this matter in very influential circles at this time. The starting point of this talk is the fear that the present British-French war alliance is too weak to stand much strain. There is very real fear that the French government will either have to force England into an early peace on unsatisfactory terms, or find itself overthrown by French public opinion. To meet this pressing practical problem there is a thought of proposing to France the formation of a permanent federation with the U. K. It is recognized that such a plan might or might not be the starting point for a general federation of Western European states, along the Swiss model. Such a federation has, of course, been a dream solution of Europe's problems for a long time, but it obviously can get nowhere unless the foundation is laid for the dominant powers. A permanent French-British alli-

ance, as a means of meeting the weakness of the present situation, might possibly supply the necessary foundation.

In any case, however, it seems that the problem of the Jersey company is to try to plan for itself the best possible course to meet problems which will be created by an impoverished Europe.

Very truly yours,

F. A. HOWARD.

FAH:MF.

cc: Messrs. W. C. Teagle, Orville Harden, R. W. Gallagher, W. E. Pratt, F. H. Bedford, Jr., D. L. Harper, E. J. Sadler, T. C. McCobb, G. H. Smith, H. A. Riedemann, J. E. Crane, A. C. Minton.

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ARNOLD EXHIBIT No. 2

STANDARD OIL COMPANY,  
New York, September 8, 1939.

C3—Standard I. G. Jasco Incorporated Hydrocarbon Synthesis Corp.

Mr. F. H. BEDFORD, Jr.,  
Building.

DEAR MR. BEDFORD: I am returning Mr. Teagle's letter of August 30th addressed jointly to you and Mr. Sadler regarding companies in which we are jointly interested with the I. G. Farbenindustrie A. G.

In accordance with the request of Mr. E. J. Marvin I wish to submit the following with respect to these companies:

STANDARD I. G.

This company has a paid in capital and surplus of \$100,000, of which we own 800 shares or 80 percent and I. G. F. owns 200 shares or 20 percent. The I. G. F. paid \$20,000 for their participation. Through the so-called Four Party Agreement executed in the latter part of 1929 this company obtained the sole rights to licensing the hydrogenation process and although we disposed of one-half of our foreign interests in this process (exclusive of Germany) all over-riding royalties on this process based on 2¢ per barrel both here and abroad are cleared through the Standard I. G. In addition thereto the I. G. F. have also received through Standard I. G. royalties on Parafflow and Paratone. It is also possible that the royalties on catalytic refining may be passed through the Standard I. G.

We recognized the fact that we should do something to protect the Company's interest to make sure that the 20 percent interest held by I. G. F. should not fall into unfriendly hands and last Thursday, August 31st, Messrs. R. P. Russell, H. W. Fisher, and the writer had a long conference with Dr. Walter Duisberg and proposed that we reacquire these shares from the I. G. F. at cost, \$20,000. On Friday, September 1st, Messrs. Russell, Fisher, and the writer met the Executive Committee and obtained their approval to purchase the 20 percent interest of I. G. F. in Standard I. G. at \$20,000. We accordingly cabled the I. G. F. in Berlin, attention of Mr. Herman Schmitz and made this offer and on September 4th received a cable advising as follows:

"Referring your cable to Dr. H. S. we hereby sell to you our capital stock in Standard I. G. at the price offered."

It was then necessary to develop the question as to where these shares were held and I discussed this matter with Dr. Hochschwender of Chemnyc and he informed me that he believed the shares were in possession of Messrs. Hutz and Joslin, the lawyers of I. G. F. in New York. I accordingly telephoned Mr. Hutz and he informed me that the shares were in his custody for I. G. F. but he was reluctant to release them unless he received direct advice from abroad. I then cabled I. G. F. in Berlin on September 5th as follows:

"Referring your cable September fifth understand shares are held by Hutz and Joslin and would suggest that you advise them direct to deliver the shares immediately to us STOP Please send stock power signed by I. G. covering these shares with instructions as to where to make payment."

We have not as yet received a reply to this cable.

For your information I would advise that the net profits of Standard I. G. are limited to \$11,000. per annum and all sums in excess of that amount

are therefore paid to the I. G. F. as over-riding royalties or are turned over to Standard Oil Development Co. This means that the maximum dividend that the 20 percent holding of I. G. F. in Standard I. G. may receive in any years is \$2,200, and it would therefore not seem out of line for us to pay \$20,000 for this investment.

Of course, what we have in mind is protecting this minority interest in the event of war between ourselves and Germany as it would certainly be very undesirable to have this 20 percent interest in Standard I. G. pass to an Alien Property Custodian who might sell it to an unfriendly interest.

In our session with the Executive Committee on September 1st, at which Messrs. Teagle, Sadler, Harden, Harper, Gallagher, and McCobb were present, Mr. Teagle raised the question as to whether it would not also be advisable to endeavor to purchase the royalty rights accruing to I. G. F. as well as their stock interest. This is a very difficult thing to evaluate and if we did not succeed in obtaining these royalty rights and were at war with Germany any such royalties would then be confiscated by the Alien Property Custodian but he would not be able to obtain control of the stock if we have purchased it and no unfriendly interest would be permitted to have an insight into the details of the company's operations.

I might mention that some consideration has been given to having Standard I. G. used as a conduit through which the catalytic refining (C. R. A.) royalties will flow, and if this is done it will greatly increase the amounts that will currently be due the I. G. F. There is a possibility, however, that a new company may be formed, similar in nature to the Standard I. G. to handle the C. R. A. royalties.

#### JASCO INCORPORATED

This company has a paid in capital and surplus of \$8,000, of which we own 50% and I. G. F. owns the other 50%. This is also an important company through which research is directed on suggestions made from the two owners. It was proposed that Dr. Duisberg purchase these shares including the Buna patents from the I. G. F. at the cost of their investment, or \$4,000. However, I believe there was some hitch with respect to the rubber patents but we anticipate that Dr. Duisberg may acquire the shares and if this is done it will prevent their being seized by an Alien Property Custodian because he is an American citizen and proposes to purchase the shares with his own funds. We also plan, if possible, to have Dr. Duisberg execute an option in favor of Jasco Incorporated with respect to the shares that he will require from the I. G. F. so as to insure that these shares will not fall into unfriendly hands in the event of his death. I understand that Mr. F. A. Howard has stated that Buna is included in Jasco although we do not appear to have any documents to substantiate this. In my discussion with Dr. Duisberg a few days ago I asked him directly concerning this and he affirmed that it was included in Jasco and that although no documents have apparently been executed in connection therewith he insists that the I. G. F. will live up to their verbal agreement.

For your information I would advise that Dr. Duisberg is a son of one of the founders of I. G. F. and naturally has the confidence of the I. G. F. people. I believe quite recently Dr. Duisberg was Chairman of the Board of the American I. G. company but I believe that he has withdrawn from this and is now a private citizen working in the capacity of a chemist and patent attorney.

#### HYDROCARBON SYNTHESIS CORPORATION

This company was formed to exploit the so-called Fisher patents, and N. W. Kellogg & Co., Shell, I. G. and S. O. D. Co. were each to have a 25% interest. It developed, however, that we in reality had certain rights to the Fisher Process through the Four Party Agreement and 50% of the company owned jointly by I. G. and ourselves is held in the name of Standard I. G. Company as Agent for I. G. Farbenindustrie, A. G. and S. O. D. Co. and in reality we own 40% of the company and I. G. F. owns 10%. We advanced the funds for the latter company's participation and hold their 170 shares as collateral against the loan to them by Development of \$17,000. Because of certain restrictions imposed on the transfer of these shares requiring that stockholders must offer their shares to the other shareholders, and because of certain complications with respect to

the negotiations now being undertaken with respect to C. R. A. we are reluctant at this time to endeavor to effect the transfer of the I. G. F. holdings to us.

Mr. Teagle did not mention this company in his letter but I thought it best to mention it here for completeness sake.

Yours very truly,

W. SCHAEFER, *Assistant Comptroller.*

WS:B

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ARNOLD EXHIBIT No. 3

JUNE 4, 1940.

Mr. N. E. McDOWELL,  
*Tax Department.*

DEAR MR. McDOWELL: We have had in mind for some time a reorganization of Jasco Incorporated. The following outline will give you an idea of (1) the original Jasco set-up, (2) what has already been done by way of changing it, and (3) what further steps are contemplated. As a result of some recent discussions between R. C. Wilson, D. G. Tomkins and myself the proposed arrangement appears to have crystallized to the point where we should obtain your views as to whether there is any serious tax disadvantage in the steps which we have in mind.

1. THE ORIGINAL JASCO SET-UP

Jasco was organized in Louisiana as a 50-50 subsidiary of Development and I. G. Development and I. G. were to give Jasco exclusive licensing rights under their patents for certain chemical processes, and these exclusive licensing rights were to be exploited by Jasco for its own benefit except that the originator of any process (Development or I. G.) was to receive certain overriding royalties out of the proceeds of the exploitation of that process.

2. CHANGES MADE BY THE HAGUE MEMORANDUM

By virtue of The Hague Memorandum, effective as an agreement as of September 1, 1939, the 50% stock interest of I. G. was delivered to certain trustees for the benefit of Development. The memorandum provided that Jasco's obligations to pay royalties to Development and I. G. were to be cancelled, so that all proceeds of Jasco's exploitation of its processes would be for the benefit of Development. To compensate I. G. it was agreed that Jasco and Development would quitclaim to I. G. all their rights to these processes throughout the world outside of the United States. The British Empire and Frances and its possessions. Germany has always been entirely outside the original and the revised Jasco arrangement.

An essential feature of The Hague Memorandum is that there shall be a periodic comparison of the returns from the exploitation of the processes in question in the territory reserved to Jasco against the territory assigned to I. G., so that adjustments may be made from time to time in the event that this division of territory does not have the effect of dividing the returns from the exploitation of the processes between Development and I. G. in the same way that they would have been divided under the original Jasco set-up.

3. PROPOSED FURTHER STEPS

As steps to put The Hague Memorandum into effect it is contemplated that Development and Jasco shall quitclaim to I. G. all their rights to the aforesaid processes for the I. G. territory and that I. G. Development, and Jasco shall, for the territory reserved to Jasco, assign their patents to trustees to be held for the benefit of Development. Development would have the sole right to license the patents of the trustees (for Development's own benefit) provided, however, that Development's right to license shall be subject to obtaining in each instance the trustees' written approval of the sufficiency of the consideration to be paid for the license. The trustees' right to disapprove any license has a double purpose, firstly a purpose which would be expressed in the documents namely, to protect I. G.'s interest in the periodic comparison of profits by seeing to it that Development exploits the patents for not less than their fair value and secondly, a purpose which we do not contemplate mentioning in the documents, namely, to keep these patents, as in the past, outside of the category of patents over which Development has complete control and under which Development therefore passes rights by virtue of Development's many past and future agree-

ments and licenses purporting to pass rights under all patents controlled by Development and its wholly owned subsidiaries.

An advantage of the proposed arrangement is that the profits which would otherwise accrue to Jasco (a Louisiana corporation) and pass from Jasco to Development and I. G. in the form of dividends and royalties would now accrue directly to Development and I. G. Jasco would be compensated for this by the cancellation of the original Jasco Agreement and its obligation to pay royalties to I. G. and Development as therein provided.

We would like to have your views as to whether there is any tax disadvantage in the proposed arrangement. I realize that you may find this statement of the arrangement too brief and general for your purposes, and Mr. Wilson and I, who cooperated in preparing this statement, will be glad to talk it over with you and give you any further explanation that you may require.

Yours very truly,

F. R. LOOFBOUROW.

FRL:JW

cc: Mr. F. A. Howard, Mr. R. P. Russell, Mr. W. E. Currie, Mr. H. W. Fisher, Mr. R. C. Wilson, Mr. D. G. Tomkins.

#### ARNOLD EXHIBIT No. 4

STANDARD OIL DEVELOPMENT COMPANY,  
26 Broadway, New York, July 18, 1941.

#### Hydrogen Manufacturing Agreements.

Mr. F. A. HOWARD,  
30 Rockefeller Plaza.

DEAR MR. HOWARD: Within the last two months we have received enquiries for license under hydrogen manufacturing patents, as follows:

(1) The M. W. Kellogg Company: Proposal to license Swift and Company, and perhaps other companies, for the hydrogenation of animal and vegetable fats.

(2) Mathieson Alkali Works: Nature of use not disclosed.

(3) Foster-Wheeler Corporation:

(a) Informs us it has been asked to bid on a large hydrogen manufacturing plant for the Government.

(b) Also for manufacturing hydrogen to be used in ammonia synthesis (non-Government project).

(4) Armour Fertilizer Works:

This came through Advance Solvents. The proposed license would be for the manufacture of hydrogen to make ammonia for conversion into fertilizers.

By letter agreement dated December 15, 1937, Development agreed to make its technical information in the field of production of hydrogen for use in ammonia synthesis available to I. G.

By supplemental agreement of February 10, 1941, Development agreed that I. G. shall have the right to grant licenses under United States patents and patent applications owned by Development and covering the manufacture of hydrogen by the methane-steam process. This license is to be available only to those licensees who agree to grant back to Development, for the benefit of itself and other subsidiaries and affiliates of Standard Oil Company, a corporation of New Jersey, a nonexclusive, royalty-free license to operate under the hydrogen manufacturing patent rights of such licensee for any purpose for which hydrogen may be used in the petroleum industry.

Advance Solvents (Synthetic Nitrogen Products Corporation) has an arrangement with I. G. whereby it can license a company which controls, for the manufacture of hydrogen to be used in manufacturing ammonia to go into fertilizers.

We have had some communication from I. G. with respect to licenses for hydrogen manufacture in connection with fat hardening and the like. I. G. wishes to have a royalty of 0.8¢ per thousand cubic feet of hydrogen, and as an information fee, 7½% of the cost of the equipment used in the direct manufacture of the hydrogen (excluding equipment for converting carbon monoxide to carbon dioxide).

I. G. has made no commitment as to the manufacture of hydrogen for ammonia synthesis, and wishes to reserve the right to pass on all licenses, particularly with respect to the purpose for which the hydrogen is to be used.

We do not have any right to license I. G.'s patents outside of the hydrocarbon field. If we give others information as to hydrogen manufacture outside the hydrocarbon field, I. G. would no doubt believe that it is entitled to compensation for our having done so.

The I. G. patents on hydrogen manufacture are in my name as Trustee.

The Development Company patents on hydrogen manufacture are, of course, licensable by us. One of these patents in particular covers an apparatus which is embodied in our own plants, and would probably be used in plants constructed by Kellogg or Foster-Wheeler. The broad method and catalyst patents all originated with I. G.

Very truly yours,

W. E. CURRIE.

WEC:MS

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ARNOLD EXHIBIT No. 5

"IGNSEKRETARIAT, BERLIN, GERMANY,  
Jan. 20, 1941.

"AC 19 Ringer to effect important tax savings we would like to liquidate Jasco and therefore ask you to cable us confirming our understanding that Jasco contract dated September 30, 1930 with amendments was supplemented and in part superseded as of August 31, 1939 by Hague memorandum re readjustment of Jasco and the letter of September 25, 1939 regarding Oppanol and to further cable us confirming agreement on following modifications in mechanism firstly Jasco to assign its patents for your territory to IG or trustees nominated by IG and for Jersey territory to Development or Trustees nominated by Development Secondly Jersey hereafter to assign its patents same as under firstly and IG hereafter to assign its patents for Jersey territory to Development or said Trustees Thirdly Trust Agreement regarding five Jasco shares would be cancelled in order liquidate Jasco and functions of this Trusteeship would be replaced by Trusteeship of patents for Jersey territory as suggested in firstly and secondly.

STANDARD OIL DEVELOPMENT COMPANY,  
FRANK A. HOWARD, *President*"

FRL:JW.

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ARNOLD EXHIBIT No. 6

JANUARY 30TH, 1940.

Re: JASCO.

Mr. H. W. FISHER,  
26 Broadway.

DEAR MR. FISHER: I am enclosing herewith the first draft of a new Jasco Agreement to replace the old one. I am also sending copies to Mr. Tomkins and Mr. Wilson for comments.

In working on this draft I gave considerable thought to your idea that this is a patent licensing venture and that no party should receive any part of another party's profits derived from operations other than what would be a fair royalty for the use of the patent. In this connection you suggested that the results to be compared for the purpose of yearly readjustments under Article VI of this draft are on the one hand the results of the I. G. and on the other hand the results of Development through Jasco. But since I. G. presumably has no "Jasco of its own," it may be that I. G.'s returns ascribable to royalties and to the operation of the patented processes will be mixed and that it would not be fair to compare them with Development's results from Jasco, which is only a patent licensing company.

To solve this problem what do you think of a provision to be added to the said Article VI concerning the readjustment, reading as follows:

"It is understood that the business covered by this agreement is the licensing of patent rights, and the returns which are to be compared under this article are the returns representing a fair royalty for licenses under the patent rights in question."

I will be glad to discuss these matters with you again at your convenience, especially the way in which I have treated Oppanol in the oil industry in Articles V and VI.

Yours very truly,

F. R. LOOFBOUROW.

FRL:JW

cc: Mr. D. G. Tomkins, Mr. R. C. Wilson.

Encl.

DECEMBER 14, 1939.

#### ARTICLE I

Wherever the term "new chemical process" is used in this agreement it shall be deemed to mean a process which comes within the following limitations:

A. It shall employ as starting material crude petroleum, natural bitumen, or natural gas or products made therefrom, to the extent only that they are made therefrom, and it shall be complete in the sense that it produces a marketable product obtained shall be a natural and logical development of the production of the first marketable product rather than an incident to the existing business of the parties, the production of such further products shall be likewise included, subject always to the limitations of B, C, and D.

B. It shall be a chemical process of a nature different from the separation and refining of petroleum and natural gas.

C. It shall be a process not coming within a certain four-party agreement of November 9, 1929, to which I. G. and Standard Oil Company, a New Jersey corporation, are parties.

D. It shall not have been commercially used by either party prior to September 30, 1930.

#### ARTICLE II

As soon as Jersey or I. G. shall have developed a new chemical process which it is then free to bring under this agreement, it shall acquaint the other party with all technical and commercial details thereof and give the other party an option exercisable within four months to elect whether the process in question shall be further investigated, tested, and developed by the party having such option. If within the said four months the party having such option shall elect not to request that the process be so investigated, tested, and developed, then the process in question shall thereafter be free of the operation of this agreement. If within the said four months the party having such option so requests it may undertake the investigation, testing, and further development of the process, and the originating party shall be bound to assist the party having such option in all ways in such work and especially by providing technical and trade information and experienced technical experts for carrying on the work.

#### ARTICLE III

If and when the investigation, testing, and further development of any new chemical process by the party exercising its option as above shall have proceeded to the extent that commercial exploitation is in order, the parties shall bring the process under this agreement.

Bringing a process under this agreement shall mean that—

A. The parties shall agree upon a definition of the process in question.

B. For the United States, the British Empire, and the French Empire (France, its colonies, possessions, protectorates, and mandates) Jersey shall grant to Jasco exclusive licensing rights (excluding also the grantor) under all its patent rights insofar as they relate to the process in question, and I. G. shall assign to Jasco all its patent rights relating to the process in question.

C. For the remainder of the world, except Germany, Jersey and Jasco shall grant to I. G. exclusive licensing rights (excluding also the grantor) under all their patent rights insofar as they relate to the process in question.

D. For Germany, Jersey and Jasco shall grant to I. G. a nonexclusive, royalty-free, divisible, transferable license under all their patent rights insofar as they relate to the process in question.

The grants described in paragraphs B, C, and D of this Article III shall run for the full term of the patents in question and shall be deemed to include all existing and future patent rights and experience relating to the processes in question, but only to the extent that this is not precluded by contracts with others in force on the date of such grants.

It is agreed that the parties will endeavor to keep one another advised as to any contracts they may have or enter into which may directly, definitely, and for a long term preclude them from granting any patent rights as hereinabove provided, and to the extent to which any party is precluded from so granting, to that same extent the other parties shall be free from the obligations of this article.

It is understood that under the terms of the preceding paragraph A of this Article it remains possible for any party to enter into agreements with others which may bear upon or even include directly processes which must be later brought under this agreement or which are at the time actually under investigation, testing and development by the party having an option to do so. This freedom is deemed necessary to the conduct of the regular businesses of the parties and it is desirable for the purpose of this agreement in that it permits the maximum latitude of technical cooperation and enlarges the opportunities of the processes. The parties will, however, be governed in exercising the freedom of action which they have under the preceding paragraphs of this Article by their intention to accomplish the purpose of this agreement.

Nothing in this agreement contained shall in any way affect the rights or obligations of any of the parties hereto or of any other party under the said Four Party Agreement of November 9, 1939, nor an agreement of the same date between I. G. and Standard Oil Company, a New Jersey corporation.

#### ARTICLE IV

It is agreed that the following processes shall be brought under this agreement—

1. Paraffin Oxidation.
2. Acetylene Arc Process.
3. Oppanol Process.
4. Buna Process.

and the parties agree that insofar as they have not already done so they will promptly complete the steps required under Article II hereof for bringing these processes under this agreement.

#### ARTICLE V

I. G. hereby grants and agrees to grant to Jersey for all countries outside of the United States, the British Empire, the French Empire, and Germany for the life of the patents in question the exclusive right to manufacture and sell Oppanol for the oil industry, against a royalty equal to one-third of Jersey's net profit from such manufacture and sale.

#### ARTICLE VI

On request of Jersey or I. G. made at any time after one year from the date of this agreement, and not more frequently than once each year thereafter, Jersey and I. G. shall exchange reports of their respective returns from the promotion of the processes brought under this agreement, and if it shall appear from such reports that the division of territory between I. G. and Jasco as herein effected shall not have been equitable in its financial results as judged by (1) the Jasco Agreement, and (2) *the situation as regards Oppanol in the oil industry prior to the effective date of the present agreement*, then the parties shall correct the inequity in such manner as may seem most fair and advantageous at the time.

#### ARTICLE VII

Pursuant to the foregoing the parties hereto shall make or cause to be made any formal assignments or further instruments necessary to put into effect the intention of this agreement and any required future readjustment of the rights and interests of the parties to this agreement.

#### ARTICLE VIII

For the purpose of this agreement Germany shall mean Das Deutsche Reich as constituted on the date of this agreement.

#### ARTICLE IX

This agreement shall remain in force until terminated by two years' written notice served by one party upon the others, but no such notice shall be served prior to December 31, 1945.



IN WITNESS WHEREOF the parties hereto have caused this agreement to be executed by their officers thereunto duly authorized as of the date and year first above written.

In so doing the parties hereto and Standard Oil Company, a New Jersey corporation, owner of 100% of the capital stock of Jersey, agree that in the event that any company or companies which within the life of this agreement shall be in effect the sole owner of, or the sole property of, or the sole property of the sole owner of I. G. or Standard Oil Company, a New Jersey corporation, shall fail to subscribe hereto or to comply with the terms hereof, then I. G. or Standard Oil Company, a New Jersey corporation, will indemnify and hold harmless the other against any and all consequences of such failure.

I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT.  
STANDARD OIL DEVELOPMENT COMPANY.  
JASCO, INCORPORATED.  
STANDARD OIL COMPANY.

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ARNOLD EXHIBIT No. 7

Unsere Zeichen (bel Antwort anzugeben) A. L. 1, Dr. Ri/Hii.

I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT,  
*Ludwigshafen A. Rhein, den May 11, 1940.*

C. R. A.—AGREEMENT.

GENTLEMEN: Mr. Howard has reviewed with us the proposed new arrangements Standard I. G. is to make in accordance with the documents listed in the attached schedule.

In the annexed memorandum of our own commenting on these proposals we have outlined certain changes which we regard as essential and others which we regard as desirable. Subject to the acceptance of the essential conditions referred to in the memorandum and further subject to the conditions of this letter we agree that you may proceed to complete the contemplated arrangements and that we will do everything required of us to enable you to do this.

1. Standard I. G. and I. G. release each other from all obligations to exchange technical experience for the period of the present war and for so much longer as governmental restrictions may apply to either side in that connection.

2. Standard I. G. and Standard agree that C. R. A. will grant no licenses or immunities on Catalytic Refining processes at a rate of less than 2½¢ per barrel and no immunities in Intermediate Zone processes of Class I and II at a rate less than 80% of its lowest licensing rate to third parties without I. G.'s consent.

3. I. G. agrees that Standard I. G. or C. R. A. may grant licenses or releases under patents originating with Standard in exchange for licenses or releases for members of the Standard family without limitation or accounting, but if any consideration in cash or its equivalent is received, Standard I. G. or C. R. A. shall pay over to I. G. 20% thereof.

Standard I. G. or C. R. A. may grant licenses or immunities under the patent rights originating with I. G. with or without those originating with Standard and may fix the price and terms of such license, subject only to the agreement of November 9, 1929, and shall pay over to I. G. 20% of the proceeds.

4. Standard will before final execution of the contracts obtain assurance from Shell that on the termination of the present war Shell will stand ready to join with Standard to proceed in accordance with a certain memorandum of August 15, 1939, entitled MEMORANDUM REGARDING SHELL AND JERSEY ROYALTY PAYMENTS, the first line of which reads:

"(1) It has been agreed that Shell and Jersey for the world outside of \* \* \*

and the last line of which reads:

"\* \* \* Company for the licensing of the processes in which I. G. is interested."

5. I. G. and Standard will enter into an agreement between themselves in accordance with the principles of the London draft of October 13, 1938, entitled "SECOND DRAFT OF I. G. AND JERSEY AGREEMENT ON CATALYTIC CRACKING," corrected and revised to suit the changed arrangements of the documents of the annexed list. This agreement will furthermore contain provisions to the effect

that all German rights which C. R. A. holds or acquires through the new contracts will be transferred to I. G. for Germany as provided for in the so-called Long Beach Agreement.

Sincerely yours,

I. G. FARBENINDUSTRIE AKTIENGESellschaft,

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ARNOLD EXHIBIT No. 8

MEMORANDUM OF PHONE CONVERSATION BETWEEN W. M. A. AND H. C. B., JULY 17, 1941

Mr. H.'s friend received an urgent telephone message from his principals on July 16th and advises that Jersey gave I. G. option on January 4th, 1935, to purchase all shares of D. A. P. C. and that the discussions continued during the first half of 1940. Now I. G. wants to know the option price of the D. A. P. G. shares.

Mr. H.'s friend believes that if the price of the D. A. P. G. is reasonable, his principals might purchase both D. A. P. G. and the Maort, and that his Government could probably be induced to provide large sums in free currency. His principals will not approach their Government until they may know that there is a probability of making a deal, and D. A. P. G. deal has been discussed with Klasen and he agrees.

It is Mr. H.'s friend's idea that this is a move on the part of I. G.—as our friends and on the part of Dr. Schmitz personally—to safeguard Jersey's interest for the duration. He added, however, that this is only his impression as this is the first time this matter has entered into the discussions.

F. suggests that Mr. H. take up this matter in N. Y. and after that report to A. in Brazil in code so that A. will have something in writing to report to Mr. H.'s friend.

\* \* \* \* \*

Mr. H.'s friend also requests that he be given the text of the clause in the Maort concession which requires permission of the Hungarian authorities to transfer shares to third parties. He wants an answer on this as soon as possible, particularly if the first question mentioned above is delayed.

\* \* \* \* \*

COMMENTS

Mr. A. stated he had the agreement of which the above clause is a part, and that he would make an extract of the desired clause and give it to F. Mr. A. stated he has in his confidential possession three documents—the 1933 contract; the 1933 agreement; and the supplementary agreement of 1937.

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ARNOLD EXHIBIT No. 9

STANDARD OIL DEVELOPMENT COMPANY,  
P. O. Box 243, Elizabeth, N. J., November 21, 1939.

Personal and Confidential  
Dr. M. B. HOPKINS,  
26 Broadway, New York, N. Y.

DEAR DOCTOR HOPKINS: Some time ago we received a rather detailed report on the preliminary work carried out by the Navy's Mare Island Laboratories on the evaluation of the three synthetic rubbers submitted to them, i. e., Buna-S, Perbunan, and butyl rubber. Last week, Mr. Werkenthin of the Navy's Bureau of Construction and Repair in Washington spent the day with us here at Bayway to discuss the Mare Island Laboratories results, and to get some first-hand information on the compounding and general handling of these synthetic rubbers.

Mr. Werkenthin was particularly interested in ascertaining how far we had proceeded in the development of butyl rubber. He seemed rather favorably impressed by the properties of this product as brought out by the movie and with the work in general, but perhaps he was somewhat disappointed to find that we are not closer to commercial production as he seems to be particularly impressed by the properties of butyl rubber.

Because of the possible application of butyl rubber to some of the Navy's requirements, Mr. Werkenthin had been instructed also to look into the manufacturing process. You will recall that I took up this question with you before his arrival. As agreed upon, I took Mr. Werkenthin over to the "K" Plant when it appeared that I could not very well steer his interest away from the process. However, I am quite certain that he left with no picture of the operations other than that a considerable amount of distillation and refrigeration is involved in the handling of the light hydrocarbons, and that refinery gas rather than straight butadiene is the raw material.

We will continue our active contact with the Navy as far as the development of uses for Perbunan and butyl rubber are concerned, but no further work will be done on Buna-S. At the request of the Navy's Bureau of Construction and Repair, we are sending an additional fifty pounds of Perbunan and twenty-five pounds of butyl rubber to the Mare Island Laboratories.

The Navy's report as well as the points brought up at the time of Mr. Werkenthin's visit are discussed in further detail in the attached memorandum by Mr. Lightbown.

I trust that you will call to Mr. Howard's attention any phase of this that you think may be of interest to him.

Very truly yours,

PER K. FROLICH,  
*Chemical Laboratories.*

PKF: hf.

Memorandum.

c. c.: Messrs. E. V. Murphree, H. W. Fisher.

NOVEMBER 20, 1939.

MEMORANDUM IN CONNECTION WITH REPORT JJ 33/L5 (34-330415) OF SEPTEMBER 11, 1939, AND WITH MR. WERKENTHIN'S VISIT OF NOVEMBER 16, 1939, CONCERNING THE APPLICATION OF BUTYL RUBBER AND BUNA-N

Confidential report JJ 33/L5 (34-330415) concerns tests made at Mare Island, California, on "Product X" (butyl rubber), "Product N" (Perbunan) and "Product S" (Buna-S).

Since Buna-S was found to be unsatisfactory for the prescribed use, and because at the present time we know very little about its characteristics, comment will be restricted to Buna-N and butyl rubber.

The report's criticism of both butyl rubber and Buna-N was restricted in both cases almost exclusively to the processing characteristics and not to the properties of the finished article. This is, of course, to be expected when standard machinery and established techniques are applied to a new product.

Butyl rubber is tougher and more "nervy" than natural rubber, and although, as the report states, it takes up the pigments faster, this toughness remains even after prolonged milling. This is an intrinsic characteristic of butyl rubber but one which may be slightly modified by running the batch a little warmer than usual on the mill.

Mare Island butyl rubber compound E-18-1 was found to have excellent electrical properties for wire insulation, coupled with unusual age resistance after 5 hours in an air bomb at 80 pounds per square inch and 260° F. temperature (the results show the tensile strength to have actually increased after aging) but the 200% modulus and the permanent set were below specifications while the ultimate tensile strength was not taken because the samples, elongating more than rubber, stretched to the full length of the Olsen testing machine without breaking. The matter of tensile strength and sample breaking can be taken care of by slightly modifying the shape of the sample. Compounded E-18-1 with very slight modifications, prepared in our laboratory, had a tensile strength of 2700 pounds per square inch and an elongation of 975%. In comparison with this, the Navy specifications call for a 1500 pounds per square inch minimum tensile and an elongation of at least 400%. The 200% modulus specifications are written especially for rubber compositions. Butyl rubber has a much lower modulus (stress) up to about 600%, and this is an intrinsic property of the material just as high modulus is an intrinsic property of natural rubber; but in neither case does the modulus make much difference in actual application. Permanent set, although probably falling in the same category as modulus, may necessitate some slight compounding adjustments.

These differences in the characteristics and variations in the processing of butyl rubber in comparison with natural rubber were brought out in a written reply (November 13, 1939), to the Navy report and were discussed during our conversation with Mr. Werkenthin. The processing of Perbunan was also discussed. The Navy report considered Perbunan as satisfactory except that it was difficult to mill. This was discussed in the reply mentioned above and Mr. Werkenthin was shown in our laboratory what is considered the best method to follow.

Concerning butyl rubber, Mr. Werkenthin spoke of the following possible uses:

1. *Insulation*.—We will be sent the specifications and if possible we will make up a few lengths of wire which will be tested by the Navy.

2. *Warship deck mats*.—Mr. Werkenthin will send us a sample of a natural rubber deck mat along with the physical specifications. These mats are cemented to the steel deck with an ordinary rubber cement. They are exposed to unusual conditions. According to Mr. Werkenthin, their life is about a year and a half. They can be quite easily tested and it may be advisable for us to get a small mold to make a section about 12" x 24" in our own press..

3. *Acid resistant lining*.—Submarine battery rooms are entirely lined with soft rubber to protect the steel portions against attack by splashing acid. For such a use, butyl rubber should have excellent properties. Since butyl rubber is more difficult to vulcanize than natural rubber and because we know very little about adhesion to metals, this application would probably require considerable work.

4. *Pickling tank lining*.—Comments on this use would be the same as for battery room walls.

It was Mr. Werkenthin's opinion that butyl rubber might find wider application if it were first tested in special uses such as deck mats, etc. These special uses would permit of more thorough testing, the results of which might well lead to a better understanding of the more general applications.

I. E. LIGHTBOWN,  
*Chemical Laboratories.*

IEL: hf.

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ARNOLD EXHIBIT No. 10

TRANSLATION OF LETTER FROM I. G. TO HOCHSWENDER DATED NOVEMBER 12, 1934

(p. 43)

The situation in the synthetic rubber field has changed considerably as a result of progress that was made in the last few weeks in processing our Butadien rubber. After the unsuccessful experiments made by Conti and General Tire, all German rubber firms have been supplied with samples of our synthetic rubber for experimental purposes. This was done at the request of the Reich Rubber Commissar. After an astonishingly short time a small firm succeeded in getting favorable results so far as the use of synthetic rubber for the manufacture of tires is concerned \* \* \*

If current examinations confirm the usability of synthetic rubber, production will be started. This being the situation, it is possible that we are no longer directly interested in reaching an agreement with du Pont in the synthetic rubber field. We would like, therefore, to keep negotiations with du Pont in suspense and omit the further development of our examinations \* \* \*

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ARNOLD EXHIBIT No. 11

26 BROADWAY, NEW YORK, January 17, 1935.

Mr. A. C. MINTON,  
30 Rockefeller Plaza.

DEAR MR. MINTON: I return herewith corrected draft of the minutes which you sent me covering my report to the Executive Committee.

Very truly yours,

(Signed) FRANK A. HOWARD.

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Mr. F. A. Howard made the following report:

*International Hydrogenation Patents Company organization*.—Shell agrees should be divorced from close association of offices and management with that of its organization—

1. The office quarters in a separate building under full time manager. Standard Oil Development Company man to join staff at once.

2. Messrs. Carlisle and Jacobson to work in close association in management.

3. Schneider-Creusot offered license to hydrogenate coal and fuel oil to produce up to 100,000 tons per annum gasoline in France. Indications are they will accept.

4. Japanese negotiations to be suspended pending outcome of oil company negotiations for proper quota and stock inventory treatment in Manchuria.

5. Kessler now adopting more liberal attitude toward licensing hydrogenation but his associates are still holding back.

*Compensation for marketing I. G. production in Germany.*—Shell required to accept for six years same return per gallon as ourselves based on an interest return on our investment instead of on their higher investment per barrel. Thereafter Shell is to receive return based on interest on their investment. Other German sales contract points settled and memorandum initialed covering final settlement.

*Elektron Concentrate*—produces supreme quality aviation lubricating oil. Crampton has been authorized to negotiate with owners of process to develop trading terms. Mr. Howard recommends we acquire, if possible. Their present sales are about 1,000 T per annum, but they estimate their potential sales as 5,000 T per annum by which they calculate a capitalized earnings value of \$4,000,000. Committee agrees a trade should be developed.

*Anglo-Persian*—are still refusing to distribute their share of I. C. I.'s production unless they get the full 15% return on their distributing investment which we and Shell get. Our position is that they are only entitled to 7% unless and until they buy a full participation in the English hydrogenation patent rights. They decline to do this now but a solution may be found through their desire to install a shale oil hydrogenation plant as to which discussions are now under-way.

*Synthetic rubber, Germany.*—Recent improvements make it commercially practicable and it will be developed for immediate use within Germany. Not yet commercially profitable outside Germany on account of competitive price of natural product unless tests now under way show better wearing qualities than natural rubber.

#### ARNOLD EXHIBIT No. 12

OCTOBER 9, 1935.

Synthetic rubber.

Mr. W. C. TEAGLE,  
30 Rockefeller Plaza.

DEAR MR. TEAGLE: Dr. Fritz Ter Meer, one of the Directors of the I. G. who is in this country at the present time, called on me last week to discuss the synthetic rubber process which has been in his charge. The status of this project is that under the instructions of the economic ministry the I. G. have been endeavoring to force its development as rapidly as possible during the last year. They have at the present time a plant of 25 tons per month capacity. Within one month this capacity will reach 50 tons per month; within one year it will reach 200 tons per month, and beyond this point the instructions of the ministry are to raise the capacity to one thousand tons per month within three years. As regards quality the situation is as follows:

The product in its natural form is of very superior quality, especially for tire treads, showing an abrasion or wear resistance 50 to 100% better than that of the best natural rubber. Unfortunately, however, this characteristic is associated with a structure which makes it impossible to handle the rubber on the milling and compounding machines used in present rubber factories. As a matter of fact I do not believe that any large scale process has ever been developed capable of milling and mixing this product satisfactorily. The synthetic product may be mixed with a softening agent and when so mixed can be handled in the regular rubber machinery but its superior qualities are now lost and it becomes only an ordinary grade of rubber. Despite the most determined efforts no solution of this problem has been found as yet.

From a cost standpoint Dr. Ter Meer was reluctant to give any definite figure but stated that the product was entirely hopeless from an economic standpoint in competition with natural rubber. The method of handling the present and contemplated production of I. G. is simply to sell it on a cost-plus basis, the idea being that the rubber manufacturers will be compelled to take it according to a quota

basis just as the gasoline distributors are compelled to absorb alcohol on a cost-plus basis fixed by the alcohol monopoly.

Our I. G. friends have been following closely the development of the du Pont's synthetic rubber product, du Prene or chloroprene. This product was invented by a Jesuit chemistry professor at Notre Dame and sold to the du Ponts about four years ago. The du Ponts have improved the original product materially and while it starts from the same basis (acetylene) as the I. G. product, its production cost is materially lower because of the high percentage of cheap chlorine which the molecule contains. It is not especially suitable for tires although it can be used for this purpose, but has much higher resistance to oxidation and to solvents, especially mineral oils, than natural rubber.

The opinion of our I. G. friends is that for immediate purposes chloroprene is a more promising commercial synthetic product than their own product. Ultimately the two products may not be directly competitive but may go into different fields. Dr. Ter Meer proposes to endeavor to work out a deal with the du Ponts to take over the du Prene development for Germany. His hope is to substitute the du Prene development for the projected thousand-ton-per-month development of his own process. The fundamental reason for this is that the German Government will, by the edicts of the economic ministry, be able to force an outlet for the I. G. synthetic rubber at a remunerative price. Nevertheless the I. G.'s capital will be invested in this large plant which but for the force of the Government behind it, could not be anything but a dead horse. On the other hand the same funds invested in a du Prene plant would show some return even without Government support. The gist of the matter therefore is that the I. G. would like to take over du Ponts' du Prene development for Germany and push it on a large scale in place of their own process. That makes the prospects for any successful development of the I. G.'s synthetic rubber process in the United States rather tenuous for the present. The I. G. will not abandon their technical work on their own synthetic rubber in any case but if they are successful in the proposed deal with du Ponts, their own process will fall into second place.

There is a possibility of finding some common ground between du Pont and ourselves on the du Prene development in the United States through the Jasco arc acetylene process. Acetylene is the raw material for du Prene and we believe that the Baton Rouge E project has a good chance of turning out to be the lowest cost acetylene producer in the world. We propose to put this E project into definite commercial form within the next few months by enlarging the plant into a 20- or 30-ton-per-day acetic-acid plant. This will give us the required long-term commercial experience with the production of arc acetylene to provide a firm foundation for any synthetic rubber development, either our own or du Ponts'. du Ponts are very much interested in this process of ours and recognize its possibilities.

As regards direct efforts to do something with the I. G.'s synthetic rubber in the United States, I recently had a call from Mr. R. T. Vanderbilt. He has picked up enough gossip on this synthetic rubber project from various sources to have a pretty good idea of its status. He is very much interested in the rubber business and urged me to permit him to take over this synthetic rubber development in the United States on almost any basis. He is very anxious to spend his money trying to do something with it here and is confident that he has the chemical ability in his organization to contribute things which the Germans could not contribute. I mentioned this to Dr. Ter Meer and we agreed that it is not desirable to bring any outside organization directly into this development on a full scale because this would entail giving them the benefit of a large amount of technical information which even more than the patent situation constitutes the proprietary value of the synthetic rubber project.

I urged upon Dr. Ter Meer, however, further consideration of the possibility of letting Vanderbilt, on his own initiative and own expense, tackle the problem of endeavoring to find either (a) a softener for the present product which would permit of its being worked on present rubber machinery and without losing its exceptional abrasive qualities, or (b) a modification of the rubber machinery which would permit the rubber mills to use the straight synthetic product at reasonable cost. Dr. Ter Meer will further consider this matter and talk to me again about it before he leaves for Germany. I should like to have him meet you gentlemen at this time. He is one of the strongest men in the I. G. executive organization.

Very truly yours,

F. A. HOWARD.

cc: Mr. W. S. Farish.  
Mr. E. M. Clark.

## ARNOLD EXHIBIT No. 13

## NOTES ON EUROPEAN TRIP

## GERMANY

The whole German situation was reexamined most carefully to determine whether our proposed course was a wise one. Our conclusion was that the fears of our Shell friends as to the disastrous effect on our business elsewhere from any acknowledged participation in this German hydrogenation venture were without sound foundation. We are satisfied that in view of (a) the nature of our original contracts by which we acquired control of the hydrogenation process and of the obligations we assumed under these contracts as to our policy within Germany, in order that we might have control of the process outside of Germany, and (b) in view of the developments to date within Germany and of the situation we have met and the means we have taken to meet it in Japan, Italy, France, and England with respect to internal refining and hydrogenation, we have no reason to feel that we are creating any disastrous precedent for ourselves in this German venture. Out of deference to the views of our Shell associates and at some sacrifice to ourselves, we are willing to forego a direct participation in the company, and in all of the arrangements we will try to do nothing which would embarrass our Shell associates in any way, but we must follow our own convictions and have a free hand to work out our own arrangements for the protection of our investments.

The other major question in connection with the German program was the strictly internal one: Was it safe to assume that, no matter how conditions might change within Germany, the proposed program of internal manufacture and refining would be sound and as safe as any course could be? The basis of our reasoning on this last point was as follows:

Out of the total foreign exchange which D. A. P. G. will require and presumably will obtain through various means for the present calendar year to pay for its imports of oil products, about \$8,000,000 is entirely within the control of the Jersey interests; the balance representing barter and compensation business and other types of transactions by which D. A. P. G. gets foreign credits or exchange which, if not taken by it, would be available to others in Germany. Substantially this amount—i. e., \$8,000,000 per annum—should be available indefinitely to the Jersey interests as net purchasing power for spending within Germany at the discretion of the Jersey interests. Germany therefore has nothing to gain and something to lose by any policy which results in cutting Jersey oil imports into Germany below \$8,000,000 per annum. These figures have some uncertainty attached to them, of course, but after analysis of them Schacht agreed with Klasen that our estimates seemed about correct. We therefore adopt as our conclusion the assumption that we have available for the protection of our future business in Germany a purchasing power of about \$8,000,000 per annum for German products. Our problem is to use this lever to advance our interests, especially in the following directions:

- (a) To return to us the best annual profit from our imports into Germany; and
- (b) To continue to make profits within Germany and to maintain our organizations and investments within Germany in an active and healthy condition so that we may take advantage of any future improvement in the foreign exchange situation or any opportunities to make advantageous trades; and
- (c) To retain the good will of the company.

It appears that these objectives can only be met by shifting our imports into Germany over into crude and fuel instead of finished products, cooperating with the Government in its plan for the rebuilding of German industry on a basis of maximum internal self-sufficiency. To the extent we are willing to do this we may expect to obtain the help of our friends in industry and in Government circles in counteracting the efforts of those who wish to carry the German self-sufficiency program through to 100% completion and to free Germany from important foreign influence in its internal oil industry.

On the above reasoning we confirmed our previous impressions as to the correct course within Germany. The detailed financial analysis indicate that the minimum foreign exchange of \$8,000,000 per annum which we could count upon as being available to us would provide future imports of all the crude and fuel oil required for the Hydro Plant and for the proposed lubricating oil refinery, leaving in addition a margin of \$2,500,000 for continued imports of finished products. Therefore, in the worst case in which D. A. P. G. cannot obtain any foreign exchange except that directly attributable to Jersey controlled purchases within

Germany which could be cut off, we would be able to continue to import all raw materials required for our manufacturing investments in Germany and have a safe margin over and above this figure.

Pursuant to telegraphic authorizations, therefore, the German program has been worked out as follows. Plans for the Hydro Plant will proceed on the basis of an ultimate total expenditure of 150,000,000 marks according to the following:

Original share capital 80,000,000 marks divided as follows:

- 27,500,000 marks from D. A. P. G. through deposits made in the Landerbank
- 27,500,000 marks from Rhenania through deposits made with the private firm Delbrook, Shekler & Co.
- 10,000,000 marks Gasolin A. G.
- 15,000,000 marks I. G.

In addition to this share capital, 20,000,000 marks will be provided through a public issue of bonds. The 100,000,000 marks so raised will be expended in the construction of a plant producing 50,000 tons petrol and gas oil from coal and 150,000 tons from imported fuel oil. This plant will probably be erected somewhere near the southwestern section of the Baltic and the plant will be finished in January, 1939. During the years '39 and '40 this plant will be increased in size by the addition of 250,000 tons product capacity to be made wholly from imported fuel oil. The cost of the expansion will be 50,000,000 marks provided as follows:

- 20,000,000 marks out of depreciation accounts for the years '39 and '40
- 20,000,000 marks by a second public bond issue
- 10,000,000 marks by a short term bank loan.

The above financial plan, it is understood, has been approved by Schacht and it is agreed to by all of the parties. There remains to be worked out with the Government the agreement with respect to the protection by which the profitable operation of this plant can be assured. The amount of this protection, and the length of time for which it is issued is, of course, an essential part of the program but it seems to be accepted by everyone concerned in Germany that the Government is entirely willing to meet the reasonable views of the sponsors of the plant on this question.

The D. A. P. G. will not own the shares of the new hydro company itself, nor will it have any option to acquire these shares. The details of its deposit arrangement with the Landerbank, however, will be such that as incident to the protection of the Landerbank, the D. A. P. G. really finds itself in a position to outbid any other prospective purchaser of these shares and receive the full advantage of any purchase price which it pays. In addition, the interests of the D. A. P. G. will be protected through the fact that the Landerbank shares will be taken soon after issue by an I. G. subsidiary and be held by that company subject to an agreement directly between the I. G. and S. O. (N. J.) under which I. G. obligates itself with respect to the protection of the interests of the D. A. P. G. in the voting of these shares.

It is contemplated that the only formal connection which the D. A. P. G. will have with the new hydro company will be through a contract under which D. A. P. G. and Rhenania obligate themselves to license a new company under any of their patent rights which are acquired for its business and to give to the new company their technical and commercial help in the management of its affairs.

The above rather complicated financial and stock arrangements result from the insistence of our Shell associates that neither of us should be a stockholder nor directly represented in the management of the new company. It is thereby hoped that in the course of time, perhaps before the new company is actually in operation, the views of the Shell will have changed and that it will then be possible for D. A. P. G. and Rhenania to purchase the shares of the new company from the banks. It should be mentioned that there must be some arrangement between all of the sponsor parties prohibiting the sale of shares except to known companies for a reasonable period of years, so that the control of the company may not pass into hostile hands. The D. A. P. G. and Rhenania will each contract directly with the new company for the supply rights and for the distribution of its products and these contracts will be long term contracts which should protect the position of the oil companies. Nevertheless, it is felt that control of the hydro company could not be entrusted to hostile hands.



Negotiations and the drafting of the contracts relative to putting into effect the above plans are now under way in Germany and in London.

With respect to the lubricating oil situation, the annexed letters to Dr. Krauch and Mr. Engel show that the proposed 15,000 ton per annum synthetic lubricating plants at Vacuum and D. A. P. G. are necessarily held in suspension by the uncertainty in connection with wax supply and location. Our opinion and recommendation is that Vacuum and D. A. P. G. should endeavor to limit their first efforts to a single 15,000-ton plant, built as a joint property.

The plant for refining imported distillates was first tentatively approved by the Government for location at Heilberg adjacent the Ebano refinery. This tentative approval has been withdrawn because of objections from the military authorities and from the Oil Control Committee. Presumably the plant will have to be erected on a location further inland and perhaps adjacent one of the braun coal tar hydrogenation plants to meet the objections of these two groups. We shall, of course, be free to decline to proceed if the proposed new location in our opinion renders the project uneconomical for the handling of imported distillates.

It should be explained that because the Shell already have two large refineries within Germany which are used not only for refining supplies for Germany itself but also for export, it has not been possible to come to any agreement with them. In connection with the refinery project, because of the possible reliance of the synthetic wax plant on these same refineries for raw materials and because any imported wax would contain oils which ought to be worked up in the same refineries, it has not been possible to bring the Shell into the picture along with the Vacuum in connection with the proposed plant for producing oils from wax, up to this time at least.

#### FISCHER PROCESS

Our Shell friends appear to have changed their views on the possible value and importance of the Fischer Process and the desirability of moving forward on this matter. It has been agreed in principle that we will organize a companion company to the International Hydro Patents Company to be operated by the same staff. Into this company the Shell, the Jersey interests, Kellogg, and the I. G. will put their patent rights relating to the Fischer type of processes. The Kellogg company will act as exclusive licensing agent for this company. The new company will take over the negotiations with Fischer initiated by ourselves and try to arrive at some agreement for a merger of interests or for taking over his rights.

The details of all the above arrangements in connection with Fischer have now to be worked out, but if the parties strike no difficulties in their first effort to work out these details among themselves, it is hoped that active work can be begun through the instrumentality of the Kellogg company both in the development of the Fischer type process for utilization of cheap natural gas, and in meeting competition of Fischer with the I. H. P. Process as a means of producing oil from coal.

It is now definitely understood that the Anglo-Persian company has also interested itself in the Fischer Process to the extent of proceeding with a pilot installation in England. Consideration will be given to inviting them to join with our group.

#### PARAFLOW SETTLEMENT WITH I. G.

We have arrived at a very favorable final settlement with the I. G. on their claim for damages due to our exclusive use of PARAFLOW in our own motor oils from the beginning of this business up until the present time. The direct cash cost of the settlement is only \$79,000, which we consider satisfactory.

The happy disposition of this difficult question came about through the inability of the I. G. to provide their share of the capital required for enlargement of the PARAFLOW Plant to take care of the expected increased business from general sales. We are providing all of this capital ourselves as a result of the settlement of the entire matter, which amounts to advancing for their account a minimum of some \$225,000. As security for this advance we will withhold their share of the earnings of this business.

#### ARTIFICIAL RUBBER

The I. G. are building a very large capacity for the production of their artificial rubber Buna in Germany. This is an integral and important part of the German Four-Year Plan. The attention of other countries has been thus centered on this development and the I. G. are in receipt of requests for licensing this

process. Jasco has rights to this process for the world outside of Germany to the extent that the product is made from oil or natural gas. Under the Jasco contract, however, I. G. being the originator of this patented process controls the license power of Jasco with respect thereto and has a 25% overriding royalty. Under these conditions I. G. have suggested that we permit them to negotiate not only for their own rights but for the Jasco rights as well, that is the rights on oil and natural gas outside of the U. S. This request we have agreed to with the understanding that we will be kept advised of any negotiations in which there is any real question of the use of oil or natural gas as a raw material. Soon after commercial production begins in Germany we expect to obtain limited supplies for sale in the U. S. as a specialty at a high price, for the purpose of ascertaining what market for the product might exist here at a profitable price level.

FAH: ACJ

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ARNOLD EXHIBIT No. 14

EXTRACT FROM EXECUTIVE COMMITTEE MEMORANDA

Date: October 31, 1938.

Present: WSF, OIL, RWG, WEP, DLH, TCMcC, HR.

*International ethyl agreement.*—Parties concerned are now in accord on the details of this proposed agreement and are ready to move forward under the plan previously reported, which involves having two main holding companies (to avoid dual taxation): one to be incorporated in England, and the other in the United States—the former to represent the holdings of British stockholders and the latter the holdings of American stockholders. The apportionment to these two holding companies of stocks of operating subsidiaries would be made in a manner to accord each of the partners in the enterprise his proper proportion of interest.

*Synthetic rubber.*—Negotiations indicate that the German Government will now permit discussions of details with, and revelation of technical processes to non-German parties in interest, so that within one or two months considerable progress ought to be made in these negotiations; although the German interests hope to sell the process to the international rubber cartel that course would probably mean the process might be buried in the interest of maintaining a market for natural rubber. From our approach, the possibility of interesting some rubber interest in the United States in a mutualized company for the commercialization of the process would seem the more normal course. Although the base stock used in this synthetic process is normally refinery gas, there is a possibility of a less prolific supply by dehydrogenating the butane in natural gas. To the extent that the patent question has been searched to date, the situation seems clear of any major difficulty.

Buna 'N', which is the high quality, high priced specialty rubber produced from this synthetic process, appears to have a ready market and Goodyear has already approached our interests for a license as soon as licenses are available.

Buna 'S', the lower-priced quantity product from the process, which would be used in the rubber-tire market, is more difficult to produce at a commercially practicable cost, although recent developments in Germany indicate it may be possible to produce this product at a cost of between 15¢ and 20¢ per pound, as compared with the market for crude rubber which has varied in the past several years between 10¢ and 30¢ per pound.

A plan in which interested parties have shown some interest is for the I. G. to put their developments of this process into Jasco, through which company our contribution to the development would also be arranged. I. G. in such an event might have for example, a 25% overriding royalty and control of the process, the balance of the profits being split fifty-fifty between the partners. On the other hand, the value of our development contribution might be sufficient to so improve our trading position that some compromise might be effected on the 25% overriding royalty or on the control of the process, or with respect to both.

*Aviation gasoline.*—Recent discussion of this situation with the INTAVA people reveals the astonishing picture that although estimates of the total European market for 1938 stand at 6,800,000 barrels, upon reappraisal right after the European crisis the estimate for the year 1941 has been revised to 26,000,000

barrels, of which 75% is for 100-octane and 25% for normal octane aviation gasoline. Intava's anticipated share of the market, based on present position, is 40%. The above figures compare with our interests' present total export volume of aviation gasoline of 3,500,000 barrels. It is very difficult at this time to attempt any estimate regarding the proportion of these surprising figures which may represent quantities for storage as compared with quantities for current consumption.

*Hydrocarbon synthesis agreement (Fischer process).*—The agreement covering the United States and Canada between Standard I. G. (in behalf of Standard Oil Company (New Jersey) and I. G. Farbenindustrie—50%), M. W. Kellogg Company (25%) and Shell Development Company (25%) relates to the processes of manufacturing liquid hydrocarbons from carbon monoxide and hydrogen (the Fischer process in Germany, where it is in commercial use for production of gasoline, diesel oil, and paraffin wax from coal). The partners will hold stock (% indicated above) in a new U. S. corporation—Hydrocarbon Synthesis Corporation—which will undertake the development and licensing.

The agreement covering area outside Germany, the United States and Canada, between Ruhrchemie (50%) and International Hydrogenation Patents Company (50%) will provide for exploitation of the process by a Netherlands company—International Hydrocarbon Synthesis Company—through which also the revenues from the hydrogenation process and the synthesis process will be pooled to clear the way for effective cooperation between the companies in technical, economic, and licensing matters.

Cash payments to Ruhrchemie in Reichmarks are equivalent to \$35,000 now, \$75,000 in a few months, and \$75,000 in about one year, of which Jersey's share will be about 54%.

Royalty payments to Ruhrchemie per ton of primary product will be 12.5¢ from others and 6¢ from partners until \$1,500,000 has been paid; 10¢ from others and 4¢ from partners until \$2,500,000 has been paid, and thereafter 5¢ from others.

Cost of gasoline from oil hydrogenation is expected to be about 20¢ per gallon as is the case in coal hydrogenation, but in developing the process on gas as raw material it is expected that with methane worth 4¢ to 5¢ per M cubic feet, gasoline can be produced at a 6¢ to 8¢ per-gallon cost (though Kellogg estimates a 3¢ to 5¢ per-gallon cost).

Jersey's share of the contemplated joint research and development program will probably be between \$100,000 and \$200,000 per year for two or three years.

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#### ARNOLD EXHIBIT No. 15

#### FILE MEMORANDUM

JULY 23rd, 1937.

The I. G. manufactures a synthetic rubber which is marketed or to be marketed under the trade name "Buna." The Atlas Supply Company has been interested in obtaining this rubber for their product and the U. S. Rubber Company would, of course, be pleased to use it in manufacturing products for Atlas.

So far as I know, foreign rights to the product outside of Germany and full information regarding the manufacture, use, etc., of the product have not been released to anyone by I. G., probably because the Hitler government does not look with favor upon turning the invention over to foreign countries, and also because the I. G. may fear that if any other concern starts working with their product they may develop methods of processing, milling, improvements, etc., that might cramp I. G. in the promotion of its own invention. It is highly desirable from a Jersey standpoint that if any rights are to be released in the U. S., it should be done through Jersey so that Atlas may benefit, and this should be to the interest of I. G., because Jersey's connection with U. S. Rubber could be used to assure adequate promotion.

It is rumored in the rubber trade that the R. T. Vanderbilt Company has been given samples of the material by I. G. which are not available to others, and if this means that I. G. is considering having their invention handled by Vanderbilt rather than through Jersey interests, it may be well to approach I. G. and explain our viewpoint.

M. B. Hopkins

ARNOLD EXHIBIT No. 16

OCTOBER 1ST, 1937.

L-3116

Mr. P. W. MOSS.

*c/o Stenoco S. F.,**52, Avenue des Champs Elysees, Paris, Be.*

DEAR MR. MOSS: I understand that you are sailing from New York to-day and I am very much disappointed that you and Mr. Bedford did not come over in time to show me Paris. I am sailing on the "Britannic" tomorrow (Saturday).

As you know, most of my time since I came over here has been spent in connection with the Alcohol project for England. Information which is necessary for determining the advisability of the project has been obtained, but there are still a number of questions to be answered before any recommendation can be made. There is one very big stumbling block which may throw the whole thing overboard. That is the Government attitude towards giving us a subsidy now enjoyed by the fermentation people and the continuance of road-tax exemption for the alcohol content of petrol.

Mr. Redford may be interested in some information I obtained in Germany regarding the synthetic substitute for rubber "Beuna." At a meeting with some of the IG officials who are responsible for determining the policy in connection with this product, Dr. Termeer, who is a Director of the Company, was very emphatic in stating that he did not consider it advisable to place the responsibility for marketing "Beuna" in the hands of any one company in the United States. He was positive about this and when alternatives were proposed he was very firm. At the present time the manufacture of "Beuna" in the United States is not considered economical; costs are entirely too high. The government does not yet permit export from Germany except by special government permit in every instance. So far sample quantities are to be shipped to the following in the United States: Goodrich, Raybestos, Vanderbilt, Goodyear, and Manhattan Rubber.

The IG is going ahead on a very large scale with the production of "Beuna" in Germany, but this is possible only because of Government support and Government determination to be independent of foreign rubber supplies. There are a number of different grades of "Beuna" and the interest to U. S. firms is confined to utilisation for special purposes rather than as a general substitute for rubber.

Yours very truly,

M. B. HOPKINS,  
Per B. M. LAKE.

MBH/BML

ARNOLD EXHIBIT No. 17

EXTRACT FROM EXECUTIVE COMMITTEE MEMORANDA

Date: April 4, 1938.

Present: WSE, RWG, FHB, Jr., DLH, TCMcC at 10:30 A. M. meeting.

## III. GERMANY

*Synthetic rubber.*—With reference to Committee memorandum of October 1, 1937, Mr. Howard brought the Committee up to date on the progress made in the synthetic field in Germany since his last report. One commercial plant has been finished, is now producing 300 tons per month of synthetic rubber, and will produce at the rate of 2,000 tons per month by the end of this year; a second plant will be finished early in 1940, and a third early in 1941. When completed, these plants will give Germany a synthetic rubber production capacity of 75,000 tons per annum as compared with the country's present total requirements of 60,000 tons.

Information which we had expected to receive about the technical aspects of this development, in line with the understanding Mr. Howard reported on October 1, 1937 (pages 6 and 7), has not been forthcoming as a result of the German Government's refusal, because of military expediency, to permit I. G. to reveal such information to anyone outside Germany. Mr. Howard did develop, however, that present commercial operation indicates a cost, before fabrication, of about 40¢ per pound for the synthetic material. This would be greatly reduced

by the process to be used on gas raw material in the United States. At the present time milling costs of the material appear to be about twice as much as milling costs on natural rubber, but it is expected that in time those costs can be reduced so low that the cost of the finished product may be made reasonably competitive in the tire field. The process is already profitable in the specialty field. As an illustration, the DuPont's oil-resistant rubber, Neoprene, sells for 75¢ per pound.

The Jasco understanding is such that, with respect to a product like this, developed by I. G. interests in the nonpetroleum field, a 25% overriding royalty is first paid to I. G. before the pro rata sharing of returns. Also, I. G. has the deciding voice on policy question with reference to their own inventions, as we do in the case of our inventions. Mr. Howard deplored the fact that the German Government's restrictions on I. G.'s freedom of action had prevented our making material progress in the American field, particularly as there is some indication that the American rubber companies are making independent progress along these lines. As an illustration, he understands Goodyear has already made tentative arrangements with Dow Chemical Company to go ahead in the synthetic field if progress is not made with us. He said he is to have a conference with Goodyear and I. G. representatives here on Wednesday.

As to the method of approaching the rubber industry, Mr. Howard felt less inclined to follow the patent license method than a program of interesting principal U. S. rubber companies with us and I. G. in a manufacturing plant conveniently located near a pipe line, as at Baytown, where low-cost butane would be readily available. Mr. Gallagher questioned whether the selfish interests of the rubber companies might not motivate them in holding back synthetic development if such an arrangement gave them the opportunity to do so. Mr. Howard pointed out that the U. S. rubber companies do not control their raw material, and probably would be as deeply interested in a commercial synthetic product as we and I. G. are. Committee felt this should be developed further. (See F. A. Howard & F. H. Bedford letters in A. C. M. files.)

*Synthetic fatty acid.*—The third plant for the production of synthetic fatty acid is now finished in Germany and total domestic requirements are taken care of.

In connection with the utilization of this process in the United States, through Jasco, the deal made with Procter & Gamble provides for using about 15 tons per day, which represents one half the capacity of a small plant, to be priced in line with the going coconut oil market. The present difficulty is that our people have named a price of 2¢ per pound on the wax used, which hardly permits the plant to do more than break even on operations. A wax price of 1½¢ per pound is necessary in order to show a good write-off on the investment. This aspect of the matter is still under discussion.

Messrs. E. J. Sadler, F. W. Abrams, R. P. Russell, E. V. Murphree, G. W. Gordon, S. P. Coleman and H. L. Shoemaker joined the meeting.

*Houdry process.*—Committee discussed the memorandum analyzing the extent of likely Jersey interest in the Houdry process which was prepared by the manufacturers and representatives of the Coordination Department.

This analysis indicated that, while there appeared to be no long-range advantage to Jersey in the use of this process, there might be some justification for covering ourselves with a short-term, say two-year, license for the use of it on a specified amount of refinery capacity if it only cost us our estimated savings to do so. At that, we ought to receive definite guarantees that the prices would give the results promised, otherwise our estimated savings might not be achieved. The best estimates indicate that a saving of about \$10,000,000 might be made in a two-year period which, assuming a payment of \$100 per barrel of charge, would mean covering between 75,000 barrels per day and 100,000 barrels per day of productive capacity with the license.

Mr. Howard pointed out that evolution in patent practice convinced him the premise of determining license cost by estimating potential savings through its use was unsound, and that a proper valuation of a license should depend upon the preferential value of the process under consideration over other competitive processes. By such standards he did not believe a fair value could be considered more than \$3,000,000.

Apropos of our own patent position, Mr. Russell pointed out that our patent people feel (although outside patent opinion has not yet been received) that our plant design for catalytic cracking is based on practice which antedates the Houdry patents, most of which past practice is covered by our own patents, and it is unlikely Houdry could sustain a case against us for infringement.

It appears Standard Oil Development Company will have their plant designs for a 20,000-barrel-per-day plant ready for consideration about July 1.

After discussion, Mr. Farish suggested that Messrs. F. A. Howard and F. W. Abrams prepare a draft of reply to the J. A. Brown letter (see Committee memorandum of March 23, 1938). It was felt that the reply should involve the following thought: we could scarcely pay anything for the Houdry patent if in the deal we were to receive no participation in cross licensing; consequently, are the Houdry people inclined to give consideration to our having a suitable pro rata participation?"

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ARNOLD EXHIBIT No. 18

FILE MEMORANDUM

OCTOBER 19TH, 1939.

BUNA

(Discussion with P. K. F.)

The old original Buna was butadiene polymerized with metallic sodium. This was not an emulsion process. In speaking of this old Buna, the I. G. usually call it number-Bunas to distinguish from present Bunas which are designated by letter suffix such as N and S. The old Buna process is still used by the Russians. The produce submitted to General Tire for experimental purposes in accordance with Jasco's contract with General Tire in 1931 was the old Buna.

The I. G. has two basic U. S. patents in which the processes for making Buna are fairly well described. Buna-N, which is a polymer of butadiene and acrylic nitrile, is described in U. S. Patent . . . Buna-S, which is a polymer of styrene and butadiene, is described in U. S. Patent . . . The process for making the Buna-S consists of emulsifying butadiene and styrene in water under pressure. A wetting agent is added and an organic acid catalyst is used. The emulsion is agitated and it slowly polymerizes. About 20-30% of nitrate or styrene polymerizes with butadiene in making the Buna products. Styrene is manufactured by Dow and sold at a price of 60-62¢ per lb. The cost of acrylic nitrile is not known but either Rohm & Haas or American Cyanamid should be able to make it.

Our people have never made Buna but the Chemical Laboratories are starting experiments. The Development Division has assembled data largely from patents which are sufficient to make preliminary estimates possible. The I. G. has not furnished anyone technical information although Mr. Murphree walked through one of the plants several years ago.

Buna-N was first tried as a successor to number-Buna for tires. The I. G. next changed to Buna-S for tires. They report a 30% longer life for Buna-S tires than for rubber tires. Up until a year ago Buna-S tires were made by putting Buna-N on a rubber tire but it is understood that starting about a year ago it was planned to make the tires entirely of Buna-N.

It is generally considered here that the American rubber companies are far ahead of the German rubber companies in the art of preparing rubber products.

Buna-S samples in this country have apparently been limited to those furnished the rubber companies for trial purposes and small samples furnished the Chemical Laboratories.

Buna-N has been marketed here. This product is more like Neoprene in some properties and also sold to replace Neoprene when the du Pont plant failed. The trade apparently like the Buna-N.

Our people are thinking in terms of a cost of 15¢ per lb. for isobutylene-butadiene copolymer when manufactured at the rate of ten tons per day.

MBH:GD

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ARNOLD EXHIBIT No. 19

TWENTY-SIX BROADWAY,  
NEW YORK CITY, October 20th, 1939.

Mr. F. A. HOWARD,

Building.

DEAR MR. HOWARD: You asked about the amount of technical information available on manufacture of Buna rubber. Excepting information Mr. Murphree was able to get when he went through an I. G. plant eight years ago, the only knowledge our people have is derived from published patents. At the time of Mr. Murphree's visit, the old sodium polymerization process was in favor but a plant using the

at-present-favored emulsion process for making Buna-N and Buna-S was in operation. The process did not appear to be tricky or to present many difficulties from an engineering standpoint. It is not possible, however, to determine in advance what difficulties will be encountered until the process is carried out on a laboratory and a pilot plant scale.

The operation of the polymerization process itself seems to be less of a problem than the obtaining of raw materials. For this reason manufacturing of Buna-N, in the limited quantities required for specialty outlets, presents less problems than manufacture of Buna-S, which is of interest only if it can be made on a relatively large scale. Acrylic nitrile for Buna-N can probably be purchased in quantities sufficient to take care of a plant of economical size, whereas a plant to make Buna-S would require such a large quantity of styrene as to make it necessary to either develop and put in a styrene process ourselves, or arrange for another supplier, such as Dow. With either process, it is, of course, necessary to have a supply of butadiene. Since a butadiene supply is also necessary for butyl rubber, the Chemical Laboratories are devoting much of their time to study the processes for reducing butadiene. Other butadiene supplies, such as that of United Gas Improvement, are being considered, but a supply which does not leave us in the hands of outsiders is highly desirable.

A synthetic rubber enterprise would be either:

(1) A slow development which at the outset would produce a quantity of high-priced specialty product for the market and also large-size samples for test purposes in all fields where rubber is used. As the tests of the samples prove their value for new uses, plant additions can be made to increase supplies. By this method at least four or five years may be required before arriving at a position of importance in the rubber business. In the early stages, rubber would not be produced for automobile tires, or

(2) A rush development to supply the country with rubber either to meet an emergency or to put the country in a position where it does not depend, even in peace times, under crude rubber imports. This requires a synthetic product suitable for automotive equipment.

For (1) Buna-N or butyl rubber or both could be manufactured with considerable assurance of market acceptance in the specialty field. For (2) a choice must be made between Buna-S and butyl rubber. In favor of Buna-S is the knowledge that Germany is using the product for tires. Also the tests by U. S. tire manufacturers put the Buna-S ahead of butyl rubber. Against Buna-S is the probability that just as long a period of time would be required to develop the art of producing and compounding Buna-S for tires as would be required in the case of butyl rubber, the only difference being that success is known to be attainable in the case of Buna-S, whereas there are only very strong indications that it is attainable in the case of butyl rubber. Also there is the high cost of Buna-S as compared with that of butyl rubber. Further there is more technical information about manufacturing and compounding butyl rubber.

The work now being done is along the lines of a slow development (1). As you know, butyl rubber is going into the pilot plant stage and plans are being made to study the Buna-N process in the laboratory. I recommend that the project continue along present lines until the suitability of butyl rubber for tires can be determined. I believe, however, that the whole synthetic rubber effort could be accelerated by an increase in technical personnel to carry it along. There is undoubtedly in each department a shortage of men to advance the project as rapidly as is justified by its promising possibilities.

Very truly yours,

M. B. HOPKINS.

MBH: GD.

CC: Mr. R. P. Russell, Mr. E. V. Murphree, Mr. H. W. Fisher.

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ARNOLD EXHIBIT No. 20

OCTOBER 25, 1939.

Buna.

Mr. A. C. MINTON,  
30 Rockefeller Plaza.

DEAR MR. MINTON: We have received from the I. G. telegraphic acknowledgment of our advice of acceptance of the basic of settlement on the Jasco matters, including Buna, and we are now endeavoring (with the assistance of the I. G.) to clear up the question of the actual delivery of the shares of Jasco.

At the request of the joint Army and Navy Munitions Board, I went to Washington on Thursday last to discuss synthetic rubber with them. Rubber stocks in the U. S. are now down to about 170,000 tons, which is about 3½ months normal supply. Supplies in the U. S. for the past few years have gradually dropped from about nine months' supplies to the present low level. Whether the supplies contracted for with England on the barter transaction will be actually obtained is regarded as problematical—and in any event the amount is not great. In view of this situation the Munitions Board desires to know as accurately as possible what the situation is with regard to the possibility of producing rubber synthetically within the U. S. I advised them as follows:

Of all the synthetic rubber developments in the world, only the Buna-S development of the I. G. is, up to this moment, demonstrated to be a possible immediate reliance for production of synthetic rubber of quality suitable for automobile tires, at a price, and in quantities, which would be practical. We have not complete technical information on the Buna-S manufacture in this country, and cannot obtain any more information from Germany. We have complete control of the patents, however; and with the patents and the information we already have, it would be possible to produce the Buna-S product in the U. S. A minimum of two years would be required, however, to complete and get into operation the first large plant. The primary raw material would be butane. The exact quality of the Buna-S tires, as compared with natural rubber tires, is still the subject of discussion and test, but there can be no reasonable doubt that the product is practical and reasonably satisfactory. The tests, which were instituted according to the program agreed upon a year ago to be made by the four leading American tire companies, are either completed or very nearly completed at this time, and the data should be available almost immediately.

There is, in our opinion, no possibility of producing Buna-S rubber on a scale sufficiently large to be of any importance at all statistically in the U. S. within the two-year period mentioned, unless the development were undertaken as a matter of national defense with a limitless open purse, and with a first claim on the time of the large number of technologists whose laboratory and engineering work would be necessary.

The Munitions Board were of the opinion that, unless the product could be produced within approximately two years, the matter was of no importance as bearing upon the present military situation. In other words, a slow normal technical and financial development of Buna-S or other synthetic rubber in the U. S. would of course be favored by the Board, but would be no answer to the pressing problem they have before them.

Under the above conditions the prospects of doing anything practical at all are very discouraging, but it is as agreed as follows:

Through the gentlemen of the Munitions Board and their associates in the Army and Navy departments, consideration will be given to the possibility of providing immediate very large financing for a synthetic rubber project. The Reconstruction Finance Corporation is mentioned as a possible source of funds. Consideration will also be given to the possibility of subsidizing production through contrasts with the tire companies at a relatively high price for tires produced from synthetic rubber of domestic manufacture.

In the meantime, we are to endeavor to coordinate the information so far obtained by the rubber companies in their tests of the Buna-S supplied by the I. G., and to attempt a rough estimate of capital and operating costs for a single plant of minimum commercial size (say 25,000 tons per annum) corresponding to the German plants.

The above advice is not intended to be a complete statement of the synthetic rubber problem at all, but only to cover one aspect of the matter referred to, i. e., the possibility of immediate large scale production of Buna-S in the U. S., and the interest of the Government therein.

Very truly yours,

FRANK A. HOWARD.

FAH:MF.

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ARNOLD EXHIBIT No. 21

APRIL 20, 1938.

Mr. F. W. BEDFORD, Jr.

30 Rockefeller Plaza.

DEAR FRED: I am just in receipt of a letter from Dr. ter Meer, the essential part of which is as follows:



"In accordance with our arrangements in Berlin I have meanwhile taken up negotiations with the competent authorities in order to obtain the necessary freedom of action in U. S. A. with regard to rubberlike products. As anticipated those negotiations have proved to be rather difficult and the respective discussions are expected to take several months before the desired result is obtained. I will not fail to inform you about the result in due course.

To this I have sent the attached reply.

Dr. Hochschwender fully agrees with the ideas I have expressed and I shall continue, through him, to press for permission to have some informal talks with some of the other rubber people at the earliest moment. Until we have this permission, however, there is absolutely nothing we can do, and we must be especially careful not to make any move whatever, even on a purely informal, personal, or friendly basis, without the consent of our friends. We know some of the difficulties they have, both from business complications and interrelations with rubber and chemical trades in the United States, and from a national standpoint in Germany, but we do not know the whole situation—and since under the agreement they have full control over the exploitation of this process, the only thing we can do is to continue to press for authority to act, but in the meantime loyally preserve the restrictions they have put on us.

Since it is not possible for me at the moment to take any definite action, I have put aside, in favor of pressing business, the attempt to work out a definite proposal at this time.

Very truly yours,

FA: MF.

encl.

cc: Dr. G. Hochschwender.

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ARNOLD EXHIBIT No. 22

DR. FR. TER MEER,

FRANKFURT A. M. 20 GRUNEBURGPLATZ, April 9th, 38.

FRANK A. HOWARD, Esq.,

*President, Standard Oil Development Company,*

*26 Broadway, New York City.*

MY DEAR MR. HOWARD: Referring to your letter of March 15th from London, I wish to thank you very much for your courtesy of sending me the detailed information about the new interpolymers of butadiene and isobutylene made by Standard Development Company. I have forwarded the various reports to our technical gentlemen concerned and they are giving them careful consideration. Naturally any definite opinion on the said interpolymers can not be formed at the present juncture, but a preliminary test of the samples attached to the reports seems to show that the material would not come into consideration for such uses where it is subjected to strong wear such as tires.

In accordance with our arrangements in Berlin I have meanwhile taken up negotiations with the competent authorities in order to obtain the necessary freedom of action in U. S. A. with regard to rubberlike products. As anticipated those negotiations have proved to be rather difficult and the respective discussions are expected to take several months before the desired result is obtained. I will not fail to inform you about the result in due course.

In the meantime I may point out that still quite some work has to be done on our side in order to develop the syntheses of butadiene from butane or butylene to such a stage that they can be safely taken as a basis for ultimate manufacture in the U. S. A.

With best personal regards.

Yours very truly,

DR. FR. TER MEER.

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ARNOLD EXHIBIT No. 23

OFFICE OF SECRETARY,  
November 14, 1939.

MEMORANDUM OF CONFERENCE ON PERBUNAS ON NOVEMBER 10, 1939

Present: Dr. Hopkins, of the Standard Oil Development Co.; Messrs. Graham, Montenyohl, Schade, Semon, and Avery.

After preliminary greetings Dr. Hopkins stated that the Standard Oil Development Company (hereinafter referred to as S. O. D.) had fallen heir to the Buna development and I. G. had withdrawn from it. Later Dr. Hopkins advised that the Buna patents in this country were owned by Jasco, the stock of which was owned 50% by I. G. and 50% by S. O. D. More recently S. O. D. has bought out the I. G. stock and now has full control of Jasco and its patents. These patent rights relate to synthetic rubber and include rights under all patents of I. G. relevant to the manufacture of Buna products of all varieties. Dr. Hopkins said that S. O. D. now wishes to make the most of these Buna patents.

Continuing Dr. Hopkins said that Goodrich knows more about the Bunas than S. O. D. does and also probably more about the Government's interest in a supply of rubber, if war should cut off the supply of natural crude rubber. He further said that Mr. Frank Howard, President of S. O. D., was a member of one of the newly formed Federal Emergency Boards and had been called in to confer with officials in Washington concerning the availability of Buna rubbers to meet an emergency.

Dr. Hopkins further stated that as he understood the situation, tire rubber (Buna S), unless subsidized by the Government or some one with a free purse, seemed to be out of the question for present development since it was not competitive with natural rubber. In conversations concerning the development of Buna S the question of the use of such rubber by the rubber companies has been raised, provided some one should undertake to develop a source of supply of it, but Dr. Hopkins said S. O. D. has no plans for this at the present time.

Turning to Perbunan, it was Dr. Hopkins' view that that material would compete with Neoprene as the present volume price differential was only about 6 or 7 cents. This seems to be the fact at present market sales prices of these materials.

Summarizing the situation, Dr. Hopkins said that as to Buna-S, S. O. D. doesn't see how anything can be done without substantial subsidy; but as to Buna N it is at present commercial and can be made, and it is the purpose of S. O. D. to make a source of supply of Buna N available, which supply and arrangement therefor shall be agreeable to all. He further said that he recognized the need for promptly getting a supply of Buna N available before the present supply is exhausted.

When asked with respect to the supply of butadiene, Dr. Hopkins said that that was now a by-product of the petroleum industry in sufficient quantity but was wasted. In order to secure it, it was necessary to utilize several operations in its recovery and purification. He said that it was cheaper to get butadiene from petroleum sources than from acetylene, the method utilized by the Germans.

Mr. Graham asked whether S. O. D. preferred to supply butadiene or whether they were willing that it should be purchased from any available source. Dr. Hopkins said that the would be willing for Goodrich to do either way. He said that Standard Oil has a capacity at Bayway to make butadiene sufficient for 3 to 5 tons of Buna N. He explained that different refineries crack oil by different methods so that some secure larger quantities of butadiene than others. For this reason he said that it might well be cheaper to secure it from others than Standard Oil.

As to acrylic nitrile, Mr. Graham indicated that several suppliers had indicated a willingness to furnish it for our use. Dr. Hopkins said that a chemical company was now making acrylic nitrile under license from I. G. which, however, would not permit them to make this material for synthetic rubbers and that this chemical company wants the right to make it for Buna rubbers and also has asked for a license to make Buna products.

Dr. Hopkins raised the question as to whether more than one plant—that is, several plants—could make Perbunan as cheaply as one large plant could, and thought that such an economic question might well be determinative of the course that S. O. D. would pursue.

Returning to a discussion of Buna S, Dr. Hopkins asked if the Government should subsidize the development and manufacture of Buna S, whether Goodrich would be willing to use large quantities, so as to justify a large quantity manufacture of Buna S. In answer to this Mr. Graham stated that Goodrich was ready to do its part. However, a semicommercial plant for making 3 to 5 tons of Buna S a day would cost in the neighborhood of \$250,000, and his information was that the Government was not ready to subsidize the manufacture of that material as an emergency measure.

Mr. Graham stated that Goodrich was agreeable to taking a license and proceeding with the construction of a pilot plant for the manufacture of Perbunan of a capacity of 3 to 5 tons per day and was willing to participate with others in a pilot plant for Buna S of 3 to 5 tons per day. The latter project was not one which Goodrich should alone attempt.

Dr. Hopkins remarked that S. O. D. could get no technical information from Germany concerning the Bunas but that he is hopeful that the information which S. O. D., Goodrich, and others have will be enough to go ahead with. He added that what he was now doing was getting the views of everybody interested and he thought he had our views in the matter. He recognized that their views might well change when the whole picture was learned, particularly with respect to whether one plant or more than one plant should be set up, and as to this and other matters he wished to secure the views of all interested prior to reaching any conclusion.

Mr. Graham emphasized that our past experience had taught us how to use Perbunan. We are now using 20,000 lbs. per month and under right conditions could easily double that amount. As to Buna S, Mr. Graham stated that it was his view, as expressed to Mr. Louis Johnson and others in Washington, that it would require one or two years to develop a commercial supply and that it would require considerable money and necessitate a subsidy, certainly until the manufacture of it reached a point where it would be competitive with natural rubber.

However, as to Perbunan, Mr. Graham said that there was a present commercial potentiality for 3 to 5 tons per day and that, since Goodrich is the largest user, it is in the best position to develop it. He gave Mr. Mullaly's view concerning the desirability of Goodrich making the product.

Dr. Hopkins stated that S. O. D. desired to control Buna-S because the raw materials for making it come from petroleum.

Dr. Graham brought out that Goodrich is in a different position from the other rubber companies in that it has no rubber plantation. Goodyear, Firestone, and U. S. R. Co. all have their rubber plantations, from which they are able to secure substantially 25% of their present requirements. In lieu of plantations, Goodrich has specialized in chemical advances in the rubber industry and has the facilities in men and experience to develop synthetic products.

Dr. Hopkins again raised the question as to whether a maximum exploitation would result if one rubber company were to make Perbunan. He asked whether the other rubber companies would take it up as fast and also whether we would want an exclusive license. Mr. Graham explained that Goodrich today made many of the chemicals used by the other rubber companies and that the fact that we made them did not seem to affect their use by such companies and that as to an exclusive license we would be willing for our license to be nonexclusive. Whereupon Dr. Hopkins asked whether we have gone in the laboratory far enough so that we could go immediately to a 3- to 5-ton semicommercial plant. Mr. Graham replied, "Yes; we have." Mr. Graham said that this information was confidential and that he trusted that Dr. Hopkins would keep it as such, which Dr. Hopkins agreed to do.

Dr. Hopkins indicated that he believed he had the Goodrich viewpoint and was happy to have secured it in so short a time. Upon questioning by Mr. Graham, he said he would keep us advised of progress made and let us know the conclusion, indicating that a prompt decision would be made, and that we should hear from him in two weeks' time.

W. F. Avery: W.

\_\_\_\_\_, Assistant Secretary.

#### ARNOLD EXHIBIT No. 24

[Copy]

STANDARD OIL DEVELOPMENT COMPANY,  
26 Broadway, N. Y., April 14, 1938.

Mr. F. H. BEDFORD, JR.,  
30 Rockefeller Plaza.

DEAR FRED: I acknowledge your letter of April 8th.

While, of course, I cannot at the moment reach any final conclusion, I think your suggestion of having Atlas a member of the original group participating in

the Buna development in the United States is a very interesting and proper one. I would like to point out the following elements which would be involved in a decision on this matter for your consideration:

1. Buna for tires is not yet competitive. Whether it will be so in one year or five years is not certain. Whether certain premium properties which it has will be sufficient to overcome the price disadvantage is also not certain. From this it follows that any Buna marketed in the tire field for some time after the beginning of the development may have to be taken at a loss as a means of keeping the enterprise going and working toward lower costs and better quality; and in the meantime putting an upper limit on the fluctuating price of natural rubber.

2. Outside of the tire field a somewhat different quality of Buna can certainly be produced and sold at the present time at a considerable profit. Buna would be in competition with certain other products, especially Duprene and Thiokol, and possibly with other synthetic rubber substitutes in this other field. The proposed stockholders in the mutual organization other than Atlas would be in a position to take the output of Buna in these other profitable and competitive fields. Atlas would not be in this position.

3. While Atlas is the fifth largest tire marketer in the United States, it would seem to be a little difficult to substantiate the position that it was entitled to a share in a mutual enterprise of this kind, based on its sales under its brand and without regard to its investment.

4. In view of all the foregoing, would Atlas wish, even though the other companies were agreeable, to put up a one-fifth share of the capital required for this development?

Concerning your suggestion that we should not await the action of the Goodyear company, but should be working forward on this matter ourselves, I entirely agree. The thing that is really holding us up, however, is not the lack of a plan either from Goodyear or ourselves, but the inability of our partners to obtain permission of their government to proceed with the development in the United States. Until they obtain this permission it is not possible for us to make any commitment at all. Our primary objective in our talk with the Goodyear and Dow people was to convince them of our good faith and our willingness to cooperate with them, in order to avoid having them proceed prematurely with an independent development which would make it impossible to bring them into any general plan later. For the reasons stated above it was not possible for us to propose any specific plan to them in answer to their definite request for an exclusive license. Under these conditions, the best road seemed to be to explain the problem to them, tell them the way our thoughts were going, and ask them to consider the matter further and make suggestions in line with a solution of the problem according to the general plan which had been developed at our meeting.

I quite agree, however, that we should not sit still ourselves, but move as fast as we can in all directions—and one of these directions is to try to develop our own ideas of a mutual plan. I should very much appreciate your help in this—and present the following complications which exist in connection with this matter to assist your thinking:

1. The principal raw material for this manufacture would consist of petroleum gases, of which we believe our best supply is located at Baytown. Other oil companies will also have supplies of these raw materials. We must in the first instance decide whether we wish to adopt a plan which makes no provision for participation of any kind by any other oil company.

Before deciding this point we should consider the second factor in the problem:

2. These petroleum gases are not directly suitable for the production of rubber, but must first be chemically converted into different gases. Should this operation be considered a part of the Buna manufacture or should it be considered a part of the raw material supply operation? In the former case it would be mutualized, and in the latter it would remain a Jasco project—or a Humble Oil project licensed by Jasco.

3. There is also involved the manufacture of certain important blending agents from petroleum gases, these agents having a separate commercial status, so that they could be bought in a competitive market and also sold for uses quite independent of Buna manufacture. Nevertheless, the market for these products outside of Buna manufacture would be very much smaller relatively than the Buna market, if the latter developed on the expected scale.

4. Our partners have had certain discussions with the du Pont company concerning the licensing of "Duprene" in Germany, and it may be that as a result of this situation some arrangement will have to be made with the du Pont company.

5. The Dow Company apparently has a contract for joint development in this field with Goodyear. Can any place be found in the picture for the Dow Company which would make it possible for Goodyear to join the group?

6. Jasco has an agreement with General, entered into some years ago, in an effort to secure a trial of the product in the United States. This General affiliation must be disposed of in some way, perhaps by inviting General to join the group. This opens the door for consideration of the desirability or necessity of including, in addition to the "big four," the second-line tire companies.

I have only the most general thoughts on a plan for meeting the above difficulties up to the present time. These thoughts are:

That the temper of the times as regards big business and monopolies is such that the plan should be as broad and as free from any taint of building up or perpetuating a monopoly as possible. This would mean that we should endeavor to include all tire companies of any consequence without regard to size. Also, that while necessarily proceeding with a definite project (probably at Baytown) at the outset, there should be nothing in the nature of the plan to prohibit other oil companies from becoming competitive suppliers of petroleum gas, if the industry developed beyond the limits of the necessary initial commitments.

I do not as yet see how the Dow and du Pont complications can be handled—if it is necessary to handle them. I would be inclined to put the manufacture of the principal raw material from the petroleum gas in the hands of the mutual group, but to exclude the manufacture of the other blending materials, and it is possible that this latter field offers an opportunity for some understanding with the Du Pont and Dow companies, if our partners would be agreeable.

As regards royalty arrangements and capitalization, my present thought is that we should try to avoid putting any large amount of our own capital into the mutual project. Visualizing its expansion in two stages, however (first, as a rather high profit specialty business; and second, as a low profit or even sometimes basis business), the best plan might be for us to supply a substantial part of the capital for the first stage, with the understanding that we would not maintain our position as suppliers of capital, when and if the business greatly expanded as supplier of basic raw material. In this connection we must keep in mind the difficulties our partners have in finding any capital for investment outside of Germany.

In addition to our participation through investment in this project, which might be of an independent basis for ourselves and our partners, Jasco is of course entitled to a royalty which could probably best take the form of free shares.

Yours very truly,

(S) FRANK HOWARD.

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#### ARNOLD EXHIBIT No. 25

DEAR MR. HOPKINS: Mr. Howard asked me to send this to you right away, although he has not proof-read it yet.

M. F.

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JANUARY 2, 1940.

MEMORANDUM—

#### SYNTHETIC RUBBER

The consensus has been that we might wish to make substantial investments in the synthetic rubber business ourselves, both as a means for better controlling the outlet for the raw materials and integrating the manufacturing process with our own oil processes, and because this appears to be a field in which we might make a very profitable investment directly related to our business.

To meet the pressure for Perbunan in the United States, we therefore agree to license the four largest rubber companies under the I. G. synthetic rubber processes but only under conditions which would still leave open to us the possibility of entering the business actively in some way ourselves. The main limitations were a rather high royalty rate, seven and one-half cents per pound, which is not a suitable royalty for the basic industries or for only a specialty industry, the limitation on production to the licensee's own requirements, and rather far-reaching cross-licensing provisions.

Of the four companies to whom these proposals have been made, only Goodrich and Goodyear have gone far enough with plans to make Perbunan to be ready to actively follow up. Discussions with G. & G. indicate that to the extent we meet their wishes for the liberalization of the licensing contracts we shall cut away the foundations upon which our own plans would have to rest. While we have told them that in general it is our hope to work out some joint project ultimately, we have assumed no commitment to do so and therefore at the present time they are looking at the license contract we are offering to them as though it were the only thing they would ever receive from us. One cannot blame them for being critical of many of its provisions under these conditions.

We are proceeding as rapidly as possible to push forward the technical and patent preparation for this new industry and expect to have by the middle of February definite plans for production of butadiene at Baton Rouge. We are at the same time trying to get the butyl rubber pilot plant far enough forward to make demonstrations of this product and process on a substantial scale. To complete the picture it seems that we should have the clearest possible idea of what we wish to accomplish at about the same time. To arrive at a conclusion on this we should consider very carefully the relative merits and feasibility of proceeding with the rubber development entirely alone or taking on partners. In this connection the first possibility and the one we have most discussed is an industry-owned synthetic rubber company in which we would hold a substantial interest. The outline of a plan for such a company might be as follows:

#### OUTLINE OF INDUSTRY COMPANY

1. We would organize a corporation to which we would assign all of the I. G. Jersey patent rights in the synthetic-rubber field in return for all of its capital stock and for a preferred right to supply its raw materials to the extent they can be produced from oil or natural gas, and to the extent that we offer terms as favorable as any other supplier.

2. 49% of the stock of this corporation would then be offered to all American rubber companies in proportion to their consumption of rubber for the last accounting period. For example, one share per ton per annum which would mean perhaps 700,000 shares. Offering price on this basis might be a nominal figure of \$1.00 per share.

3. Each shareholder will be required to accept a license from the company to manufacture for its own requirements only at a royalty rate of seven and one-half cents per pound, and as a condition of the license to cross license the company in his improvements in the manufacture of synthetic rubber of the defined type and agree not to sue customers of the company for compounding and use of the synthetic rubber produced.

4. Additional capital for any requirements of the company to be raised by a sale of fixed interest or limited return securities (debentures or preferred stock at the option of the management) which might be offered to either outside investors or to the common stockholders.

5. In the event any rubber company stockholder does not take his pro rata proportion of any fixed-interest securities offered at any time to all shareholders, he shall offer to sell at \$1.00 per share one-half of his excess holdings of common stock to Jersey and one-half to the other shareholders, and such shareholders as accept shall divide the entire one-half between them. Excess holdings of common stock are holdings thereof in excess of the shareholders' holdings of other securities offered to the shareholders.

6. In the event Jersey does not take its ratable share of any securities offered to the shareholders, Jersey shall offer its excess common stock at \$1.00 per share ratably to the other shareholders as above provided.

7. Newcomers in the rubber industry would be offered the same position as original stockholders under fair conditions, and companies which had not accepted participation originally offered or which lost position by failure to accept securities offered to shareholders may later increase their participation up to their normal percentage on fair terms. In both cases consideration would be given to the risks taken and the returns made by the other shareholders.

5. Shareholdings of the original parties might be readjusted on the basis of cost at fixed intervals.

The general purpose and effect of this plan would be to create a synthetic-rubber business in which the supplier of the raw material and the owner of the original processes, that is Jersey, would have a one-half beneficial interest and control of the company, and the potential consumers of the product would have

the other one-half interest. Each potential consumer would have a right to produce for his own requirements, but only at a rather high royalty rate. This royalty rate plus the economies of the common plan would, however, be a maximum limit upon the total profit of the common company. The consumers as a group would receive half of this profit, but unless the participations were frequently readjusted to coincide with the actual relative consumption of the synthetic product no individual consumer could be certain that he would obtain exactly his proportion.

If an effort were made to divide the profits or some fraction of them exactly in proportion to purchases, the element of return upon the capital and compensation for the inventions would be subordinated. It would seem sounder to subordinate the profit-sharing element. Presumably there will always be competition, direct or indirect, and the price level, which determines the profits and return upon the investment, would be fixed by this competition, in the main at least. The fact that one-half of the total profits go to the consumers as a group is apparently sufficient concession to the profit-sharing principle.

In offering any such plan the condition would probably have to be attached that it should not become effective unless accepted by a certain specified proportion of the industry. If so few accepted the plan that it failed of its main purpose, then other arrangements would probably be preferable.

The plan should leave the possibility for Jersey to share its interest in the company with anyone whom it elected to take in as a partner, providing that person was not interested in any way in the rubber business.

Probably the most difficult part of the plan from our standpoint is that it leaves us with the necessity of quoting a price on butadiene and isobutylene, possibly against competition, for a long term. We have in effect compromised on this basic difficulty by retaining half of the profits of the rubber business for ourselves as a hedge against any miscalculation on the raw-material contract. Our stock control of the business should permit us to make the price just as freely as though we owned the entire business, and the consumer interest is probably helpful in deciding upon a fair price. We should be paying one-half of the profits of the new business, minus whatever profit might come to us from the raw-material contract itself, in return for one-half of the capital required in the fabricating end of the new business (but not the raw-material supply portion of it), for a considerable improvement in the over-all patent position, and for some good advice in the management of the business and a very real degree of consumer support. Altogether the advantages of the arrangement appear to outweigh the disadvantages from our standpoint.

There may be serious question as to whether the rubber industry would accept such a plan because of its tendency to put us in too favorable a position.

It appears that if we consider the above plan to be one that suits us, we should not let too much time elapse before presenting it. Experience shows that the position of a patentee in a new field usually looks stronger to the outside world originally than it does later. In other words, the favorable time for the patentee to make deals is as soon as the industry is convinced of the value of the invention and before it has an opportunity to visualize too well the possibilities of competing ventures.

In the present instance it is believed that the best time for the presentation of any such plan would be immediately following a disclosure to the rubber industry of the butyl rubber development. This development, coming on top of the acute existing demand for Perbunan and our control of that situation, should create a very favorable atmosphere for the discussion of the plan. Of course, one important element from the Jersey standpoint is the amount of capital that might be involved. Only the roughest possible ideas can be given at this time, which are about as follows:

The first commercial ventures in the synthetic rubber field would probably be a plant for the production of five to ten tons of Perbunan at Baton Rouge and a plant for the production of roughly the same amount of butyl rubber at Bayway. The investments for producing raw material for these two plants are difficult to get at because they are tied into other projects which we are interested in, such as the production of high-octane gasoline and the production of ethylene, and the production or lack of production of aviation alkylate. At a guess one might say roughly two million dollars of Jersey capital might be involved within a period of a year in the initial raw material supply. The capital for the fabrication of the synthetic rubber from the raw material might be another million dollars, of which seven hundred thousand dollars might have come from the

rubber companies under the above plan, leaving a very small amount for Jersey to put up.

Taking a look ahead, the business might very well swallow Jersey capital up to the total extent of some figure in the order of twenty million dollars within a period of say five years.

The above plan would leave the door open to draw capital from outsiders, for example du Pont, by sharing our interest in the enterprise with them. Unless it appears that they can contribute to the enterprise something more important than capital, however, there would seem to be no good reason for putting them in. So far as the technical situation has yet developed, the key to the whole problem is the raw material supply. This is the point at which the large fraction of investment will have to be made to provide a broad low-cost base for operations, and this is the place where the greatest economies in the integration of this type of petroleum production manufacture with other types of petroleum production manufacture for use in the oil industry itself and for other chemical purposes will have to be made.

Under these conditions it seems that the really practical alternatives are either to proceed entirely alone with this development or to take in as partners the potential customers of the product only.

FAH:JW

ARNOLD EXHIBIT No. 26

JANUARY 10th, 1940.

Mr. T. G. GRAHAM,  
*Vice President, The B. F. Goodrich Company,*  
*Akron, Ohio.*

DEAR MR. GRAHAM: Thank you for your note of January 8th advising that you will be away from January 11th to January 18th.

So far we have been unsuccessful in efforts to find a way to meet your views about the proposed licensing agreement. The principal difficulty results from our desire not to make any commitment which would prevent us from eventually carrying out our first thought outlined in my letter to you dated November 30th, 1939, to bring about a concerted effort in a single plant which might afford economies not attainable in separate plants operated independently. The draft of agreement which I left with you was intended to permit you to manufacture the synthetic rubber for specialty purposes and leave you free to participate in a common manufacturing company or not, as you may wish, when and if such a company can be organized.

Quite frankly, it was our intention that the license would not be a suitable one under which to operate if the licensee expected to go beyond producing a relatively high-cost specialty product. For instance, we agree that a royalty rate of 7.5¢ per pound is entirely too high for products falling within Class 5 of your Article IV and selling from 20¢ up to 40¢ per pound. Yet to the extent that we meet your wishes for the liberalization of the licensing contracts, we would have to cut away the foundations upon which our own plans would have to rest.

With this statement of the situation before you, I wonder if you can make any suggestions.

Very truly yours,

STANDARD OIL DEVELOPMENT COMPANY,  
M. B. HOPKINS.

MBH:GD  
Blind CC—Mr. F. A. Howard.

ARNOLD EXHIBIT No. 27

JUNE 4, 1940.

Mr. J. W. THOMAS,  
*President, Firestone Tire & Rubber Company,*  
*Akron, Ohio.*

DEAR MR. THOMAS: This will confirm our telephone conversation yesterday, and my subsequent conversation with Mr. Trainer. We are looking forward with pleasure to a visit of your gentleman with us here on Thursday. I enclose



text of the statement which Mr. Farish made at the Standard Oil Company (New Jersey) stockholders' meeting today. It is difficult to tell what the newspapers will do to it, but at any rate, this is all we are responsible for. You will note that I followed Mr. Trainer's suggestion by asking Mr. Farish in this statement to refer to the existing cooperation between Firestone and ourselves.

I have just received a call from Mr. A. L. Viles (\*) in which he informed me that he has undertaken to prepare for Mr. Stettinius within the next few days, a complete review of the rubber industry's position from a raw material standpoint, covering both the natural and the synthetic rubber position. We have previously had several contacts with the Munitions Board on this same matter and Dr. Hopkins is endeavoring to get out for Mr. Viles the best forecast we can make on the statistical possibilities of the Buna and Butyl synthetic rubbers.

From the standpoint of very large production within the shortest possible time, Butyl rubber is especially important. Not only as a commercial matter, but because of its bearing on the national supply problems, we ought therefore to move as rapidly as we possibly can in the experimental application of Butyl rubber in tire manufacture. In view of this, we hope to avoid the necessity for negotiation of any formal contracts between your company and ours and proceed to cooperate on the simplest possible basis, confirmed only by letter following the visit of your people.

I very much appreciate your prompt action in arranging for the first visit and discussion.

Very truly yours,

FRANK A. HOWARD

FAH: MF

encl.

cc: Mr. W. S. Farish

(\*) President of Rubber Manufacturer's Association.

cc: MBN

MWF

JUNE 4, 1940.

It was announced some time ago that we had taken over the interest of the I. G. Farbenindustrie, A. G., originators of the German synthetic rubber Buna, in this product for the United States, that we are ourselves preparing to manufacture it, and have licensed the Firestone Tire & Rubber Company, with whom we are cooperating in the commercial development. You may also be interested to know that our Standard Oil Development Company has discovered in its own research laboratories another synthetic rubber product, which we call "Butyl Rubber." The Butyl Rubber is made from petroleum by processes more direct and simple than those required for the production of Buna rubber, and should be appreciably lower in cost. The German product was originally produced from limestone and coal, which were the cheap raw materials for Germany, and while in our own Buna Plant, now building at Baton Rouge, it will be produced from oil, the process involves several steps. The Butyl Rubber is more nearly a straight petroleum product and although its manufacture involves the most advanced technology, we have solved successfully the primary production problems and already have in operation a semi-commercial pilot plant at our Esso Laboratories in Bayway.

The Buna rubber is in demand at the present time in the United States exclusively for the manufacture of special rubber products such as gasoline hose, where the unique property of Buna in resisting the action of oil is important. The Butyl Rubber is not an oil-resistant product and will therefore not be in direct competition with Buna for the Buna specialty markets. The Butyl Rubber has, however, special properties of its own which make it superior to natural rubber for many uses.

As in the case of the Buna rubber, the commercial development of the Butyl rubber will be in stages, the first stage being the manufacture of relatively small quantities for the specialty market and for commercial testing in tire production. Should it become necessary for the United States to produce synthetic rubber in substitution for a major proportion of imported natural rubber, we are in a position to manufacture the Butyl Rubber from petroleum in any required quantities as rapidly as the necessary plant facilities can be installed.

FAH: MF

cc: Messrs. J. W. Thomas, Firestone, W. Clarcy, R. P. Russell, M. B. Hopkins, H. W. Fisher.

ARNOLD EXHIBIT No. 28

ESSO LABORATORIES,  
P. O. Box 243, Elizabeth, N. J., September 3, 1940.  
CA-9103

Mr. JAMES T. GRADY,  
Managing Editor, A. C. S. News Service,  
609 Journalism Building, Columbia University,  
New York, N. Y.

DEAR MR. GRADY: I am attaching here to several copies of some notes for use in the preparation of your news release on butyl rubber.

I am afraid that you may find this altogether too lengthy for use as is. However, in order not to give the impression that we merely are trying to advertise a new product by a take-it-or-leave-it enumeration of its properties, I have made a definite effort to outline the technical background of this development in rather nontechnical language. I only regret that I do not seem to be able to put this across in fewer words.

Although I appreciate that we cannot very well get away from the fact that I will be the one to present the paper, I should like to enlist your cooperation in writing this up as an achievement of the Esso Laboratories rather than to make it appear as an accomplishment of one, or even a few individuals. Those of us whose names appear on the paper feel very strongly that we represent a much larger group. We are indebted to a great many members of the research, development, and management units for real contributions throughout the entire program which has led up to the announcement of this new product. It is for this reason that we think it is only fair to treat it as a group development typical of the manner in which so many other forward steps have been made recently in the petroleum industry. You will therefore understand why I prefer not to comply with your request for a photograph of myself. However, we expect to supply you within the next day or two with glossy prints of some pictures illustrating the product.

Please do not hesitate to call upon us for any additional information if you think we can be of further help to you.

I am taking the liberty of sending copies of this to those responsible for our various company publications with the definite understanding that the effective date of the release is Tuesday, September 10, 1940.

With kind personal regards,

Very truly yours,

PER K. FROLICH

PKF: M.W.

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NOTES FOR USE IN THE PREPARATION OF NEWS RELEASE ON PAPER ENTITLED "BUTYL RUBBER, A NEW HYDROCARBON PRODUCT"

By R. M. Thomas, I. E. Lightbown, W. J. Sparks, P. K. Frolich, and E. V. Murphree of the Esso Laboratories of the Standard Oil Development Company

To be presented on September 9 before the general session at the American Chemical Society's one hundredth meeting in Detroit

Butyl rubber—the new product of the Standard Oil Company (N. J.)—will be described as a radical departure from the conventional approach to the problem of supplying our Country's need for synthetic rubber.

The first public announcement of this development was made early in June, when Mr. W. S. Farish, President of the Standard Oil Company (N. J.), at a stockholders' meeting disclosed that the Esso Laboratories of the Standard Oil Development Company had discovered a new synthetic rubber which could be made from petroleum by processes more direct and simple than those required for production of other synthetic rubbers. Mr. Farish mentioned that butyl rubber was currently being produced in a semicommercial pilot plant and that it could be manufactured in any required quantities as rapidly as the necessary plant facilities could be installed. This announcement aroused so much interest that Standard has been literally swamped with inquiries ever since. However, these have all met with the reply that it was considered best to withhold further

information for presentation in the form of a technical paper at the American Chemical Society's fall meeting.

The Esso Laboratories will review the butyl rubber development as fully as this is deemed advisable at the present time from a consideration of the national defense situation and company policies.

The fact that petroleum and rubber are built up of the same two elements, carbon and hydrogen, explains Standard's interest in the subject. It would seem that the petroleum industry with its abundant supply of low cost hydrocarbons is in the best position to supply our needs of synthetic rubber.

The presentation will start with a discussion of the rubber molecule. The reason why rubber has become one of our most valuable and widely used structural materials can be attributed to two of its molecular characteristics. In the first place, Nature's rubber is made up of extremely long, chainlike molecules in which the atoms are so arranged that a product is obtained with a high degree of elasticity. However, rubber does not have much mechanical strength until it has been vulcanized. This vulcanization is made possible by the chemical unsaturation of the rubber molecule, which permits reaction with sulfur to take place in such a manner that the long molecular chains are tied or linked together into a firm structure.

However, this very chemical unsaturation which is so essential from the standpoint of vulcanization, is also the greatest shortcoming of rubber. The reason for this is that there is too much of it. Rubber is so highly unsaturated that it remains unstable and chemically reactive even after it has been combined with the small amount of sulfur normally required in the vulcanization process. If we try to use enough sulfur to overcome this difficulty, we obtain hard rubber or ebonite—which obviously is not the answer for the production of elastic and pliable rubber goods.

In spite of the remarkable progress which has been made in rubber technology in the last decades, it has not been possible to prevent rubber articles from continuing to combine with chemically reactive agents. The most serious manifestation of this is the well-known deterioration of rubber on aging—due to chemical attack by oxygen from the air. Just as a spare tire loses more and more of its potential road mileage as it grows older, so all of our many rubber household articles—including rubber insulated electric wiring—gradually deteriorate until they have to be replaced.

In a research program which has been in progress for nearly ten years, Standard's Esso Laboratories have directed their efforts toward conquering this shortcoming of rubber.

Nature's rubber molecule and all its synthetic semblances to which so much publicity has been given recently, are—either wholly or predominantly—polymers or multiples of much smaller molecules which belong to a class of highly unsaturated compounds called diolefins. It is to this diolefinic origin that the natural and synthetic rubbers owe their extreme degree of unsaturation and resultant chemical reactivity.

Chemists working in this field have been inclined to associate the elasticity and other important physical properties of rubber with its chemical unsaturation. In their studies of chainlike polymers with no residual unsaturation however, Standard's chemists recognized a majority of these important rubber-like properties. Such polymers may be made by uniting the simple olefins which are readily available as constituents of petroleum refinery gases, but because of their saturated character they resist all efforts to vulcanize them with sulfur.

Through long years of research by a large group of men, the Esso Laboratories have now developed a method of copolymerizing olefins with small amounts of diolefins to give just the proper degree of unsaturation for vulcanization—but no more.

Out of these efforts have come butyl rubber which after vulcanization is a product with substantially no residual chemical unsaturation. As a result of this, butyl rubber is characterized by a remarkable stability and durability which for many purposes make it superior to natural rubber and to other synthetics.

By variations in the composition of the raw materials employed, it is possible to obtain products that differ considerably in their detailed properties, but the basic characteristic remains the same insofar as the limited unsaturation is concerned.

Anyone familiar with hydrocarbon chemistry will appreciate the economic advantage of being able to utilize largely the simple olefins from refinery gases rather than the more expensive highly purified diolefinic materials employed so far in the manufacture of synthetic rubbers.

Aside from its practical value, this discovery will no doubt have far-reaching theoretical consequences. It will automatically eliminate a great many speculative theories concerning the factors contributing to rubber-like properties and, in so doing, it will help to clarify and simplify our concepts. This in turn may be expected to act as a stimulus to further progress in the field of rubber technology.

This new process has been worked out by the Esso Laboratories of the Standard Oil Development Company entirely independent of any other synthetic rubber development either in this country or abroad.

In spite of the rather broad generalization which it has been necessary to make in this condensed review, it will be appreciated that a material which represents such a radical departure from natural rubber and from other synthetic rubbers is bound to differ from these products in many respects. Basically, butyl rubber is a one hundred percent petroleum hydrocarbon product. Because of its freedom from impurities—insofar as these can be detected by ordinary chemical analysis—it is colorless and free from any odor or taste. Being itself a hydrocarbon—just like natural rubber it definitely does not belong in the class of synthetics that are resistant to swelling in petroleum solvents. Somewhat paradoxically, however, it is more resistant to such simple aromatics as benzol and toluol than even the synthetic rubbers now employed in the construction of gasoline dispensing hose. It is more resistant than natural rubber to many oxygenated compounds and to certain other solvents, such as ethylene dichloride.

By some modification of the technique employed, butyl rubber may be processed and vulcanized in much the same manner as natural rubber. It may be compounded either heavily or lightly to obtain any type of stock, but in general it vulcanizes somewhat more slowly than natural rubber. It may be more highly loaded with carbon black and other pigments to give products of a given hardness, and this is an economic advantage.

The tensile strength of butyl rubber is comparable to that of natural rubber in compounds which do not contain carbon black. As butyl rubber stretches much more than natural rubber for a given load, its strength per unit cross-sectional area at the point of break is actually much greater. Its tensile strength is not increased to the same extent as for natural rubber on the additional of large volumes of carbon black. However, other properties, such as tear resistance and abrasion resistance, are affected in much the same way as in the case of natural rubber.

Butyl rubber is readily molded even into articles of intricate design, and its good tear resistance is an aid in removing such products from the hot mold.

Its abrasion resistance may be made comparable to that of natural rubber. It is also more resistant to continued flexing, both hot and cold. Indeed, it will flex without cracking at a lower temperature than any other rubber—natural or synthetic.

Although the product is more age-resistant than natural rubber, it is advisable to add carbon black to prevent butyl rubber from becoming tacky on continued exposure to direct sunlight. However, such carbon black compounded stocks are considerably more sunlight resistant than natural rubber.

A further manifestation of its saturated character is the remarkable resistance of butyl rubber to strong mineral acids. By way of illustration, hot concentrated nitric acid has no visible effect on the new product during a time interval which is sufficient to make a similar sample of natural rubber disappear completely.

Another illustration of the absence of chemical unsaturation and freedom from impurities are the unusual electrical properties of butyl rubber. As an insulating material it is superior to all other types of rubber, and its electrical properties are not adversely affected on immersion in water.

Butyl rubber is less permeable to both chemically active and inactive gases than natural rubber. Thus, it is many times as resistant to penetration of such gases as hydrogen and helium.

Butyl rubber bounces much less than natural rubber at room temperature, but as the temperature is increased to two hundred degrees Fahrenheit, the rebound approaches that of natural rubber.

The Esso Laboratories are still busy evaluating butyl rubber for as many of its potential uses as possible by such test as it has been possible to devise. Because of the dominating importance of the automobile-tire field as an outlet for rubber, tests were undertaken on a small scale early in the development to answer the question as to whether or not butyl rubber had any possibilities in this direction. Most of the efforts, however, were concentrated on problems involved in the manufacturing process.

In the meantime the military authorities had been kept currently informed of the development of this new product, with the result that tests were initiated about two years to evaluate butyl rubber for more specialized defense uses. When the future supply of natural rubber became a matter of national concern, Standard was requested by the Army and Navy Munitions Board to cooperate with one or more rubber companies to the end that the suitability of butyl rubber for tire manufacture could be determined at the earliest possible moment. Such a program was promptly undertaken and is still in progress.

The presentation will conclude with the following remarks:

"Originally the goal of those working in this field was to synthesize a product that would equal natural rubber in those properties which have contributed to make it one of our most important structural materials. The more recent trend is to synthesize materials closely resembling Nature's product in some respects, while at the same time surpassing it in others. In the light of the achievements to date, we are justified in looking forward to the development of a series of synthetics, each one of which will exceed natural rubber in certain specific properties—so that in the aggregate these products will give us something superior to rubber as we know it today. We believe that butyl rubber possesses properties which will secure an important place for it in this synthetic picture.

"Future manufacturing plans will be dependent somewhat upon tests now in progress and to be undertaken more widely when the material is distributed among prospective users. The program which is being followed with respect to the evaluation of the product for commercial uses is to some extent being governed by national defense considerations."

PKF: MW.

(8/30/40.)

#### ARNOLD EXHIBIT No. 29

#### EXTRACT FROM EXECUTIVE COMMITTEE MEMORANDA

Date: December 2, 1940.

Present: W. S. F.; O. H.; F. W. A.; R. H. B., Jr.; T. C. McC.

Messrs. F. A. Howard and H. C. Wiess joined the meeting, and with reference to Committee memorandum of November 29 explained in considerable detail the basis on which the U. S. Rubber and Firestone companies expect to deal with the Reconstruction Finance Corporation and with Jersey interests in effectuating contracts under which plants would be built for the production of buna rubber. The tentative program, to which the Committee saw no objection, briefly was as follows:

The R. F. C. would be glad to entertain and will give sympathetic consideration to proposals designed to encourage the construction of 40,000 long tons annual capacity of synthetic rubber for use in tires (including tubes) on the following basis:

(1) Any company or group of companies which desire to make a proposal should make same on the basis of agreeing to produce, sell, and deliver synthetic rubber of specified quality and composition and not inferior to a large sample to be submitted with the proposal, in units of 10,000 tons capacity per year for a five-year term, beginning not later than July 1, 1942, at a price of (x) cents per pound. (U. S. & Firestone considering 30¢ per pound).

(2) Each company or group of companies must also agree, if requested, to re-purchase from the R. F. C. the quantity of synthetic rubber sold under (1) above and to consume it in current production of tires, agreeing to pay for the synthetic product at a price which would fluctuate up and down with, but be not lower than, the current market price of first quality natural rubber. However, the R. F. C. is to retain the right on ninety (90) days' notice to retain for sale to others at prices not lower than the above-mentioned bid price, or for use by government agencies one-half or less of the product of this plant. In such event the R. F. C. shall continue to take this quantity until it gives 90 days' notice of a desire to change their proportion. The company will always have the right to take at least fifty percent (50%) of the product which it produces.

(3) The R. F. C. is willing to advance to each producing company or companies on account of its purchase obligation a sum not to exceed Seven Million Dollars (\$7,000,000) at a rate such that at no time does the amount advanced exceed 75%

The total cost of the new plants and equipment purchased or erected for the

production of the proposed synthetic rubber. New plants for the production of new materials may be included in this proposal, providing such money is actually used to finance the construction of such plants. This advance will be returned in the form of a credit at the rate of 7¢ per pound, if the entire \$7,000,000 is advanced or at such smaller rate in ratio to 7¢ that the amount advanced bears to \$7,000,000, on all synthetic rubber delivered under this contract or produced by the plant during the first five years of its effective operation. This amount shall be paid even in the event the entire original amount has been repaid.

(4) The R. F. C. shall have the right to cancel the purchase contract at any time after the first year of operation of the plant without further payment or liability, but it is still entitled to payment of 7¢ per pound (or such smaller portion as above mentioned in the event of smaller investment) for any rubber made in this plant during the five-year period.

(5) The R. F. C. may cancel the agreement at any time (before its right of cancellation under (4) above arises) on payment to the rubber company of its actual costs and liabilities incurred to that date, with deduction for any actual salvage value.

(6) A company or group of companies may, if desired, make proposals to take one or two units, but not more, of 10,000 tons each, quoting different sales price for each proposal if it so desires. The two 10,000-ton units may be combined in a single 20,000-ton unit. Such proposals must be accompanied by a contract to repurchase for use in tires only, but not necessarily in the plant of the company or companies involved in the proposal. Contracts will be awarded to responsible bidders primarily based on the difference between the price at which the product is to be sold to R. F. C. and the price which the producing company agrees to pay for the product, the latter, of course, in relation to the price of the top grade of crude rubber. Companies must also agree to hold harmless R. F. C. and those to whom it may sell its product from any patent claims arising out of the production or use of the product in tires.

Firm proposals on the above lines are to be in the hands of the R. F. C. not later than January 15, 1941.

Mr. Howard said that U. S. Rubber Company is considering the construction of a polymer plant at Naugatuck, Connecticut, where it will receive butadiene under contract from our interests, and that the Firestone Company is considering a similar plant at Akron, Ohio. Each of these contemplates making a proposal on the basis of one 10,000-ton unit. They did not favor a common plant in conjunction with our interests at Baytown. Combining butadiene facilities into one plant for the supply of the two above rubber companies would require capital expenditures totaling about \$11,500,000, \$7,500,000 of which the rubber companies would be expected to provide out of the funds they had advanced to them by the Government. The approximately \$4,000,000 of Company interest funds involved would not necessarily represent a wasted investment should the manufacture of synthetic rubber not proceed at the anticipated rate because facilities equivalent to about that value very likely could be utilized for other refining purposes.

Committee saw no objection in principle to our interests offering to make suitable supply contracts with the U. S. and Firestone companies in conjunction with their proposed offer to the Government.

Mr. Howard pointed out that, although the tentative royalty schedule which had been contemplated for buna licenses was 5% of finished rubber price on the first 100,000 tons, 4% on the second 100,000 tons and 3% on the excess above 200,000 tons, in view of all the circumstances of this particular proposition it might be desirable to consider a royalty of 3% of the probable 30¢ per pound contract price with the Government, which would return per year from each licensee about \$440,000 if the resale price should be negotiated at the minimum of 27¢ per pound which Mr. Howard had indicated to the rubber companies as the lowest price it would seem safe to consider.

Mr. Howard pointed out that progress along the above lines in getting buna rubber manufactured and used in the domestic picture in his opinion would create a favorable atmosphere in which Jersey interests themselves might proceed with a butyl rubber program.

In this connection, although earlier studies had indicated butyl rubber manufacture involved high costs unless the manufacture was on a large scale basis, recent information indicates there is sufficient isobutylene available in our picture, without constructing facilities to manufacture it, to make up to 50 tons per day of butyl rubber with a capital investment cost of about \$5,000,000.

ARNOLD EXHIBIT No. 30

JANUARY 20, 1938.

Mr. F. A. HOWARD,

*Building.*

DEAR MR. HOWARD: You will recall that recently Dr. Frolich and his associates have been doing some interesting work in connection with the copolymerization of butadiene and isobutylene. The polymers are sticky, rubbery materials which, I understand, are capable of vulcanization. The question has arisen as to whether this material comes under our Oppanol Agreement, and whether it should be disclosed to I. G.

You will understand that this material seems to stand halfway between polyisobutylene on the one side and butadiene rubber on the other. So far as I am aware, we have no rights in I. G.'s butadiene rubber business. That may be because they had the rights prior to our agreements, or it may be that the synthetic rubbers are not intended to come under the general fields of our agreements. It would seem to me that it would probably come under the new Chemical Process agreement.

So far, no one has discussed this development with I. G. and we have not sent them a copy of our case which was filed a few weeks ago. On the other hand, I found the other day that a letter had been sent out by one of my men with a copy to the I. G., mentioning very briefly this subject matter. There is not a sufficient disclosure to tell them a great deal about it, but it may be enough to waken their curiosity, so that I feel you should know this as soon as possible and that perhaps you might wish to discuss the whole matter on your next European trip.

Yours very truly,

P. L. YOUNG.

PLY: EVK.

ARNOLD EXHIBIT No. 31

STANDARD OIL DEVELOPMENT COMPANY,  
P. O. Box 243, Elizabeth, N. J., March 9, 1938.  
CA 708.5

Mr. F. A. HOWARD,

% Mr. W. A. Carlisle.

*Thames House, Milbank, London, S. W. 1, England.*

DEAR FRANK: I am attaching Dr. Frolich's letter of March 8th and memorandum by Messrs. Rosen and Thomas of the same date, summarizing the information on isobutylene-butadiene copolymers which has been assembled to date. You appreciate that this memorandum was drawn together hastily and as a result has not been abstracted and summarized as you may wish it, but certainly it does contain all the essential information.

We interpret your cablegram to mean that you wish to present this information to the I. G. so that they may work on it vigorously also. We, all of us, hope that this can be done without prejudicing Development's position with reference to this particular development. We are all convinced that the development is a really important one and that ultimately it may make considerable money. We believe it is quite distinct from the I. G. Buna development and is also quite distinct from Vistanex. We have felt that when the development was presented to Jasco we should be in as good a position with regard to this copolymer as the I. G. is on Buna. In order to make sure that we do obtain such a preferred position, we had hoped that its formal presentation to Jasco could be postponed in order to permit us to make the additional advance in the art that we know will result from further active experimental work. In particular, we, all of us, are extremely anxious to obtain the higher molecular weight copolymers which, according to the data so far assembled, should have tensile strength and other characteristics fully equal to rubber. The fact that we have not yet reached this status in our own experimental work we hope will not militate against our having a final preferred position in this field.

Although we have not yet had time to fully analyze the situation, almost all of us are inclined to favor teaming up with one of the major rubber companies (probably because of technical standing, Goodyear), so that this development may make all possible progress. The general form of any such cooperative effort

we think should be somewhat along the lines of the agreement between Jasco and Procter and Gamble on the fatty acids. In the fatty-acid field, for example, we feel that we still would be quite unable to picture the long-term outlet possibilities for the acids if it had not been for our Procter and Gamble cooperative effort. We are not, at this time, definitely recommending that we do enter an agreement with Goodyear, but since such a general proposal was in our minds we thought you might wish to discuss the matter with the I. G. at the time you discuss the technical information contained in the attached memorandum.

Very truly yours,

R. P. RUSSELL.

RPR: ecm.  
Enclosure.

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ARNOLD EXHIBIT No. 32

THAMES HOUSE,  
London, 15th March, 1938.

Confidential

Mr. R. P. RUSSELL.

*New York.*

DEAR BOB: At my meeting with the I. G. gentlemen in Berlin on the Buna question, it developed that very rapid strides were being made in all phases of the Buna development, and there is even a prospect that this development will very soon stand on its own feet economically in competition with natural rubber under manufacturing conditions and costs in the United States. This is not only in the specialty field of high-priced products, but in the main field of tyre manufacture. Certain difficulties still exist which prevent our I. G. friends from giving us full technical information and proceeding in the normal manner with the commercial development in the United States. It is to be hoped that these difficulties will be surmounted in the near future, and we here desire to do everything possible to bring about that result.

In view of the very genuine spirit of cooperation which Dr. ter Meer displayed, I am convinced that it is not only the right thing to do, but the best thing from every standpoint to pass on to them full information on the copolymer at this time. I do not believe we have anything to lose by this which is comparable with the possible benefit to all of our interests.

With best regards, I remain,

Yours very truly,

FRANK A. HOWARD.

FAH/WAG.

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ARNOLD EXHIBIT No. 33

FRANKFURT A. M., 20 GERMANY,  
*June 3, 1939.*

FRANK A. HOWARD, Esq.,  
*Hotel Royal Monceau, Paris.*

DEAR MR. HOWARD: I confirm our telephone conversations of May 27th and June 2nd and wish to repeat briefly what we discussed over the phone.

*Buna-S.*—Our rubber expert, Dr. Koch, of Leverkusen, has been in the U. S. A. for several weeks and has given to the Big Four and to General Tire the necessary indications for the use of Buna-S in tire manufacture. At the present time the rubber manufacturers carry out certain laboratory tests. In order to avoid any set-backs we intend to send Dr. Koch to the U. S. A. again in the course of the month of June so that he may be able to assist when the first batches for tires will be made. We are hopeful that road experiments with Buna tires can be carried out during the summer months so that conclusions may be available in the fall. As you know, it is my intention to come over to New York in the course of October of this year.

*Copolymer.*—I have to inform you that with regard to copolymer our work has so far made no great progress. Dr. Muller-Cunradi has a small pilot equipment under construction in order to use his catalyst and to find out whether the quality of the copolymer can be improved by using the Oppau process. Results can only be available in the late fall of this year.

As regards the application side, our judgment concerning the copolymer has not changed. We agreed that the copolymer may be an improved Vistanex, but



we do not believe that it is sufficiently rubber-like so as to replace natural rubber in major uses. We are quite willing to continue our experimental work regarding the application in our rubber laboratory of Laverkuseu, and we will forward to you all indications which might be helpful to your work in the U. S. A. We have, of course, no objection if you want to submit your copolymer to the rubber goods manufacturers in the U. S. A. for experiments.

As soon as our experiments in Oppau are carried through we would like to discuss the copolymer question again with you with the aim to come to an arrangement with you in this field.

I am very sorry that I have no opportunity this time to see you, but I trust that our two conversations over the phone settled the problems in question for the time being.

With very kinds regards, I remain,

Yours very truly,

(Dr. Fr. ter Meer) signed.

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ARNOLD EXHIBIT No. 34

STANDARD OIL DEVELOPMENT COMPANY,  
26 Broadway, New York, June 15, 1939.

MESSRS. M. B. HOPKINS,  
H. W. FISHER,  
Building.

GENTLEMEN: During my stay in Europe I had several telephone conversations with Dr. ter Meer and enclose a letter from him summarizing the situation as it now stands as regards Buna and copolymer. You will note that Dr. ter Meer has no objection to our taking up the copolymer with rubber manufacturers. I have the impression that the I. G. are of the opinion that we greatly overestimate the commercial possibilities of the copolymer, and since their experience in this field is so much wider than our own we ought to give most careful consideration to their views.

My own tentative conclusion is that we should delay for some two or three months longer any decision on taking the matter up with any rubber manufacturers—but the above is expressed only tentatively and is not intended to foreclose further consideration of this question.

Very truly yours,

F. A. HOWARD.

FAH:MF.  
encl.

cc: Messrs. R. P. Russell.  
E. V. MURPHREE.

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ARNOLD EXHIBIT No. 35

JULY 28, 1938.

Mr. F. A. HOWARD.  
Mr. R. F. RUSSELL.

GENTLEMEN: I do not know how closely you have been following the work carried out at the Chemical Laboratories on the copolymer of isobutylene and butadiene. There have been some results obtained recently which are interesting and which I would like to call to your attention.

At the time our copolymer work was disclosed to the I. G. the highest tensile strength we had obtained was, I believe, in the neighborhood of 2,700 to 2,800 pounds per square inch. By improving the mixing of the catalyst with the reaction products it has been possible recently to obtain materials having tensile strengths as high as 3,380 pounds per square inch. These tensile strengths refer to the compounded vulcanized product. For comparison the strength of rubber, as normally compounded, runs from 3,500 to 4,000 pounds per square inch, and Neoprene from 3,000 to 3,600 pounds per square inch.

Previous work has indicated that the copolymer is superior to rubber from the standpoint of acid resistance and oxidation stability. Recently flexing tests have been made which involved bending a test strip to an angle of 180 degrees for a large number of cycles. Three types of rubber stock were compared with the three copolymer blends which were compounded for the same type of service

as the rubber stocks. The rubber stocks investigated were representative of very slightly compounded rubber called pure gum rubber, tar tread stock, and white sidewall stock. Representative results are as follows:

	Rubber	Copolymer
(a) Lightly Compounded Material: Cycles for first crack.....	1,000,000	No cracks at end of 1,500,000.
Cracked half through.....	1,600,000	
b) Tire Tread Stock: First indication of cracking.....	600,000 Cycles	No indication of crack- ing at end of 5,500,000 cycles.
Sample failed.....	500,000 Cycles	
(c) White Sidewall Stock: First sign of cracking.....	135,000 Cycles	No indication of crack- ing at end of 5,500,000 cycles.
Sample Failed.....	600,000 Cycles	

The above information on flexing shows that the copolymer compounds are much superior to the rubber compounds from this standpoint. Resistance to flexing is of considerable importance for many uses of rubber, such as tires, rubber belts, and the like.

An abrasion machine has just been installed at the Chemical Laboratories and some preliminary results are available on rubber and copolymer stocks compounded for tire-tread service. The abrasion tests essentially consist of pushing a sample of material to be tested against a revolving grinding wheel. In this test the rubber sample lost 286 cc./h.p. hour and the copolymer sample 218 cc./hp.hour. These tests indicate that the copolymer may be somewhat better than rubber from the standpoint of abrasion resistance, although the results are quite preliminary.

The data on the properties of the various copolymer compounds indicate that this development is going to be of considerable importance. The copolymer should be considerably cheaper to manufacture than a straight butadiene or blended butadiene polymers, as represented by the Buna's compounds. I think the copolymer work is approaching the stage where we would like to have the assistance, if possible, of some rubber manufacturer to more definitely evaluate the compounds which can be produced.

Very truly yours,

E. V. MURPHREE

EVM:BF.

Copy to Dr. Per K. Frölich, Mr. H. W. Fisher, Dr. M. B. Hopkins, Mr. A. D. Green.

ARNOLD EXHIBIT No. 36

AUGUST 19, 1938.

Mr. R. P. RUSSELL,  
*Building.*

DEAR MR. RUSSELL: In his letter of August 1st Dr. Frölich transmitted a memorandum relative to the progress of the development work on copolymer.

You will note that the tensile strength of the copolymer has been increased up to 3,400-3,500 lbs./sq. in. Very recently samples of copolymer have been produced which, after being compounded and vulcanized, gave a tensile strength of 3,800 lbs./sq. in., which is very comparable to rubber. The copolymer appears to be superior to rubber from the following standpoints:

- (1) Oxidation resistance.
- (2) Flexing resistance.
- (3) Resistance to abrasion.

Considering the rapid progress which is being made in improving the properties of the copolymer, and considering the raw materials from which it is made, it is my feeling that it represents a more promising material than the I. G. Buna, although it has not been tested nearly as thoroughly. I have written

you previously pointing out the desirability of tying up with some rubber company in order to carry this development along more rapidly. I still feel that such an arrangement is very desirable.

Very truly yours,

E. V. MURPHREE.

EVM: BF

Copy to Mr. H. W. Fisher, Dr. M. B. Hopkins.

ARNOLD EXHIBIT No. 37

ESSO LABORATORIES,

P. O. Box 243, ELIZABETH, N. J., February 4, 1941.

Mr. P. L. YOUNG,

26 Broadway, New York, N. Y.

DEAR MR. YOUNG: In accordance with your request, I am giving you the following list of companies with whom we are cooperating in the butyl rubber development, and also the names of the individuals through whom our technical contacts are made. I am also indicating what I believe the positions of these men are within their respective organizations:

The Firestone Tire and Rubber Company: Dr. J. N. Street, Director of Organic Research.

U. S. Rubber Company: Dr. W. A. Gibbons, Director of Research.

General Electric Company: Dr. A. L. Marshall, In charge of chemical research.

Acushnet Process Company: Mr. Philip T. Gidley, Development Engineer.

United Carbon Company: Dr. H. W. Grote, Dr. I. Drogin, Director of Research.

In the case of the U. S. Rubber Company we also maintain direct contacts with the development managers of a number of branches in different localities. but I would make the assumption that these gentlemen could be considered directly responsible to Dr. Gibbons concerning the butyl rubber activities.

As far as I can recall, the only other samples of butyl rubber that have been sent out from here have gone to Professor Urey at Columbia University for use on a confidential Navy project and to Dr. T. P. Sager of the National Bureau of Standards who is carrying out studies on materials for the impregnation of balloon cloth.

On Buna rubbers we are cooperating actively with Firestone and U. S. Rubber—the same individuals being involved as shown above for butyl rubber.

There is a distinction between the type of cooperation in which we are engaged in these two fields. In the case of butyl rubber, the joint programs aim at developing outlets for products which are being manufactured by us, and very little information is given out on the manufacturing process involved. In the case of Buna, however, the two companies mentioned above are licensees under our I. G. patents as well as such additional patents as may be taken out on the basis of our own work. In general, we are therefore making available to the responsible technical heads of these two companies all information pertaining to the manufacture of the products involved.

Although restrictions so far have been placed on our butyl rubber applications, it is my suggestion that we treat all our synthetic rubber work alike—considering that the same action undoubtedly will be taken by the Patent Office on future applications dealing with Buna as well as on any other modifications.

Very truly yours,

PER K. FROLICH.

PKF: HF

c. c.: Messrs. M. B. Hopkins, H. W. Fisher.

ARNOLD EXHIBIT No. 38

MEMORANDUM—RUBBER

NOVEMBER 6, 1939.

The situation with relation to Buna in the United States is as follows:

The Advance Solvents Company, which has been importing the I. G. Buna (Buna-N), still has a small stock on hand but is not able to obtain any more supplies from Germany. It is quite apparent that a good market exists here. The company which is taking the largest quantities, the Goodrich Rubber Co.,

has applied for a license to manufacture the product. They have definitely stated that they do not need any technique from Germany, but require only a bare patent license—and that if refused a license, they are going to proceed anyway with alternative processes which they think will be non-infringing.

A year ago the Goodyear and Dow companies made an application to the I. G. and ourselves for an exclusive license for Buna-N (the high-priced specialty rubber) for the United States. No final answer was given, but it seemed quite apparent that they could not obtain the exclusive license they wanted. What they have done since we have not yet been able to find out. The U. S. Rubber Co. have consistently displayed an active interest in Buna-N.

The tests of the Buna-S (the tire rubber) have been under way in the U. S. throughout the summer by Goodyear, Goodrich, Firestone, and U. S. Rubber. None of the companies has been able to substantiate completely the I. G. claim of a 30% increase in mileage but apparently all of them (save Goodyear) have obtained some definite increase in mileage, and they all recognize the product as superior to present tread rubber in wearing qualities. They also seem confident that with more experience in the handling and compounding of the product with American materials they can improve present results. The Goodrich Company has made a definite statement that they would expect themselves to provide an outlet for approximately 100 to 200 tons per day of the Buna-S, if it could be supplied to them at a price of 25¢.

A plant for the production of 70 tons per day might represent an investment of the order of \$15,000,000 and without going into detail it is sufficient to say that in view of our lack of technical knowledge of many of the details of manufacture, and in view of the indicated limit on the maximum return which could be expected on the capital investment at any such price as 25¢, the prospects for manufacture of Buna-S on a commercial scale and on a self-supporting basis at this moment are not good. The only thing which could change this situation would be a higher valuation of the premium which can be paid for Buna-S over natural rubber. Such a higher valuation appears to depend upon further compounding experiments and further tests, which will require some time.

We have assumed to the I. G. the obligation to discuss with the du Pont Company the entire situation before deciding on our policy here, and these discussions will take place very soon.

As mentioned in an earlier memoranda, we are also obligated to pass to the Munitions Board the experience of the American rubber companies and a rough statement of the cost and commercial prospects of this business.

Our own butyl rubber development is being pushed aggressively in our own laboratories, but without outside cooperation up to this time. The only outside contact we have had on butyl rubber has been with the Munitions Board through whom we have had contact with the technicians of the Army and Navy concerning possible special uses of butyl rubber in munitions. There is a considerable temptation to publicize this butyl rubber development and to seek contact with the rubber companies on it immediately, but a sounder policy apparently is to confine the development to our own organization up to the point of standardized operation of our pilot plant about next January or February. This will give us an opportunity to feel out the whole synthetic rubber situation in the United States with the du Pont company and with the four leading American rubber manufacturers through our contacts with them on the Buna matter. The additional time is also desirable from a patent standpoint.

FRANK A. HOWARD.

FAH:MF

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ARNOLD EXHIBIT No. 39

MARCH 7, 1940.

MR. A. C. MINTON,  
30 Rockefeller Plaza

DEAR MR. MINTON: We received yesterday from the Firestone Company executed copy of the form license which we submitted to the four leading rubber companies some time ago. The Firestone Company have made several changes which are now being carefully checked, but which all appear to be minor. If further checking does not change the present conclusion we are therefore in position to complete this transaction by signing the license ourselves.

We of the Development Group believe this is the correct thing to do since in this way we will have broken down the solid front which the Goodyear and Goodrich companies have been trying to get the rubber people to make against our license plan.

If the Committee should agree with this conclusion we would have as a second question whether we should try to use the Firestone agreement to force immediate acceptance of our license by the other companies, or whether we should take the opposite tack and stiffen our position vis-a-vis the other companies, with the thought that we really do not want to make any more licenses.

A third possibility is that, with the additional strength gained by the Firestone license, and with our own definite plans to proceed now fairly well worked out, we might now propose to the four leading rubber companies that they join with us in a joint plant.

I believe we are far enough advanced with our butyl rubber development so that we could now bring this into the discussions, although our natural course would be to hold off some time longer on any disclosure of butyl rubber.

I should like to come to the Committee on Friday morning to obtain advice on the foregoing matters, and it may be that you will wish to circulate this memorandum in advance of the meeting.

Very truly yours,

FRANK A. HOWARD.

FAH: MF

#### ARNOLD EXHIBIT No. 40

STANDARD OIL DEVELOPMENT COMPANY,  
26 Broadway, New York, May 5, 1939.

Present Status of Buna S—U. S. A.

Mr. F. A. HOWARD,

*Building.*

DEAR SIR: We are submitting herewith information for your probable discussion with Dr. terMeer of the progress of Buna S in the United States, and the status of our copolymer rubber.

Dr. Frolich and I both concur in the opinion that we have reached a stage in the development of copolymer where it would be very advantageous to be able to establish contact with one or more of the major rubber companies. Phil Young advises me, and Dr. Frolich concurs, that we have filed sufficient patent applications on the manufacture of the material and on the major uses so that we can feel free, from a patent point of view, in presenting this material to outsiders, at least in a limited way.

In this connection, I hope that you have in mind working out the arrangements with the I. G. so that this product may be handled entirely by Jersey. I feel that we would be definitely handicapped if Advanced Solvents and Chemical Corporation were to have any part in promoting this material to American rubber manufacturers.

In order to bring you up to date on the Buna S development in the United States, I asked Dr. Beller, of Chemnyco, to prepare a memorandum covering the visits which Dr. Koch made to the five rubber manufacturers several weeks ago. There is nothing new in this memorandum beyond that which was given to Mr. Russell and myself at the completion of Dr. Koch's visit. I am also attaching a confidential instruction sheet of the compounding and processing of Buna S which Dr. Koch distributed to the rubber companies on his visit.

Since Dr. Koch has returned to Germany; Dr. Beller, of the Chemnyco, is following up this matter with the rubber manufacturers and is today with U. S. Rubber Company, in Detroit. It is his understanding that U. S. Rubber is about ready to manufacture tires from Buna S, although we will be able to give you a more specific report after his return. Next week Dr. Beller will be in Akron, visiting the other rubber companies. I should be able to inform you shortly after your arrival in Europe of the results of these visits. In case there is anything new to report, I will cable you.

Very truly yours,

H. W. FISHER.

HWF: MG.

Attachs.

## ARNOLD EXHIBIT No. 41

STANDARD OIL DEVELOPMENT COMPANY,  
26 Broadway, New York, June 19, 1939.

Mr. F. A. HOWARD.

*Building.*

DEAR MR. HOWARD: I have received a copy of your letter to Dr. Hopkins and Mr. Fisher pointing out that the I. G. have agreed to our approaching a rubber manufacturer relative to the copolymer development. In your letter you suggest that we delay for two or three months any decision on taking the matter up with any rubber manufacturers.

The development work on the butadiene copolymer has been carried rather far along and this material has given evidence of promising application to a variety of uses. Among the uses which show promise are the following:

1. Tire treads.
2. Inner tubes.
3. Steam hose.
4. Conveyor belting.
5. Tank linings.
6. Miscellaneous coverings, such as floor and deck coverings.
7. Other miscellaneous uses, such as vibration dampening, gaskets, weather stripping, and the like.

Possibly the most promising application for the copolymer, namely, use for electrical insulation, is not in the above list because I assume that we would not contact a rubber manufacturer but rather a wire manufacturer in this case.

The butadiene copolymer development is now at the point where most of the effort is being put into determining applications for the copolymer to various industrial uses, and we are handicapped in this work by not having sufficient experienced rubber personnel, and also by not having equipment for fabricating tires and other articles in which the copolymer would be used. I do feel that we are rather wasting time and money in this phase of the copolymer development by not having an established contact with some rubber manufacturer to further this work. I do not feel that it would be wise for us to build up a group of rubber specialists and to install fabrication equipment unless we commit ourselves to making our own development in this field. Even in this case considerable time would be lost in comparison with working directly with a rubber manufacturer. In addition I wish to point out that if we delay commercial application of the copolymer development some other group may come along with a somewhat similar product and take away from us the advantage that we might otherwise have by being the first in the field.

We have all given some consideration as to whether it would be desirable to contact one manufacturer or to contact the main groups in the rubber manufacturing field. In the case of the I. G. on Buna, they felt it was desirable to contact the leaders in the industry rather than a single manufacturer. The I. G., however, had at this stage developed a product which had been tried out commercially in Germany, and they knew it was reasonably promising. We are not in this position on copolymer as we do not have any real picture as to the feasibility of using it commercially. In our case I think it would be preferable to contact one manufacturer and work with him rather than attempt to work with the industry as a whole. This, of course, has its disadvantages as well as its advantages, but I do feel that by working with one manufacturer that manufacturer would have more interest in the proposition, and we would get more help than would be the case if we tried to work with several companies. We had somewhat the same experience in connection with our fatty-acid project, and found we got to the point much quicker by working with one manufacturer.

I do feel that the copolymer development would be very greatly accelerated by a suitable arrangement with a rubber manufacturer for determining the application of the product, and from this standpoint wish to recommend that you reconsider the desirability of postponing for two or three months such an arrangement. I also think it may be desirable to make an arrangement with an electric wire and cable manufacturer on the use of copolymer in this field where, at least from laboratory results, it should have real application.

Very truly yours,

E. V. MURPHREE.

EVM:BF.

Copy to Mr. H. W. Fisher, Dr. M. B. Hopkins, Mr. R. P. Russell.

## ARNOLD EXHIBIT No. 42

STANDARD OIL DEVELOPMENT COMPANY.

26 Broadway, New York, June 22, 1939.

MR. F. A. HOWARD,  
Building.

DEAR MR. HOWARD: This will refer to our discussion of June 20 on the subject of copolymer. I have talked this matter over with Messrs. Fisher, Hopkins, and Murphree and I think we are all agreed on the following:

1. We ought to be working vigorously with a U. S. tire manufacturer to explore the possibilities of application of our various copolymers for applications in the tire business.

2. U. S. Rubber would be the most desirable organization for us to work with.

\* \* \* \* \*

Messrs. Fisher and Hopkins are giving some thought to the kind of an arrangement which should be entered into with U. S. Rubber and will communicate their recommended outline of such a deal to you within the next few days.

Mr. Murphree does not agree with Dr. Frolich's recommendation that Thomas go to Germany since he feels that the efforts of all our personnel are needed locally over the near future, particularly if we do tie up with U. S. Mr. Murphree feels that the question of acquainting the I. C. with our present developments can be handled by sending 50 pounds of our product to Germany together with a complete memorandum outlining the work which has been done on it and the reasons why we believe the product offers promise.

Very truly yours,

R. P. RUSSELL.

RPR: BK

CC: Mr. H. W. Fisher, Dr. M. B. Hopkins, Mr. E. V. Murphree.

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 ARNOLD EXHIBIT No. 43

OCTOBER 20TH, 1939.

MR. F. A. HOWARD,  
Building.

DEAR MR. HOWARD: You asked about the amount of technical information available on manufacture of Buna rubber. Excepting information Mr. Murphree was able to get when he went through an I. G. plant eight years ago, the only knowledge our people have is derived from published patents. At the time of Mr. Murphree's visit, the old sodium polymerisation process was in favor but a plant using the at-present-favored emulsion process for making Buna— and Buna-S was in operation. The process did not appear to be tricky or to present many difficulties from an engineering standpoint. It is not possible, however, to determine in advance what difficulties will be encountered until the process is carried out on a laboratory and a pilot plant scale.

The operation of the polymerisation process itself seems to be less of a problem than the obtaining of raw materials. For this reason manufacture of Buna-N, in the limited quantities required for specialty outlets, presents less problems than manufacture of Buna-S, which is of interest only if it can be made on a relatively large scale. Acrylic nitrate for Buna-N can probably be purchased in quantities sufficient to take care of a plant of economical size, whereas a plant to make Buna-S would require such a large quantity of styrene as to make it necessary to either develop and put in a styrene process ourselves, or arrange for another supplier, such as Dow. With either process, it is, of course, necessary to have a supply of butadiene. Since a butadiene supply is also necessary for butyl rubber, the Chemical Laboratories are devoting much of their time to studying the processes for producing butadiene. Other butadiene supplies, such as that of United Gas Improvement, are being considered, but a supply which does not leave us in the hands of outsiders is highly desirable.

A synthetic rubber enterprise would be either—

(1) A slow development which at the outset would produce a quantity of high-priced specialty product for the market and also large-size samples for

test purposes in all fields where rubber is used. As the tests of the samples prove their value for new uses, plant additions can be made to increase supplies. By this method at least four or five years may be required before arriving at a position of importance in the rubber business. In the early stages, rubber would not be produced for automobile tires.

(2) A rush development to supply the country with rubber either to meet an emergency or to put the country in a position where it does not depend, even in peacetimes, upon crude rubber imports. This requires a synthetic product suitable for automotive equipment.

For (1) Buna-N or butyl rubber or both could be manufactured with considerable assurance of market acceptance in the specialty field. For (2) a choice must be made between Buna-S and Butyl rubber. In favor of Buna-S is—

(a) the knowledge that Germany is using the product for tires, and slight element of doubt that butyl rubber will be suitable;

(b) the tests by U. S. tire manufacturers put the Buna-S ahead of butyl rubber.

Against Buna-S is—

(a) higher cost;

(b) raw materials more difficult to supply;

(c) longer period of time would be required to develop the art of producing and just as long a time to develop the art of compounding for tires;

(d) other things being equal, American development is to be preferred.

As you know, butyl rubber is going into the pilot-plant stage and plans are being made to study the Buna-N process in the laboratory. This work must be carried further before it is possible to plan further ahead and make a choice between the two methods of further development. I recommend that the project continue along exactly the same lines as have now been laid out until the suitability of butyl rubber for tires can be determined. I believe, however, that the whole synthetic rubber effort could be accelerated by an increase in technical personnel to carry it along. There is undoubtedly in each department a shortage of men to advance the project as rapidly as is justified by its promising possibilities. The time is so very ripe for a replacement of natural rubber by synthetic rubber in the United States as to make the cost of such an increase insignificant in comparison with the importance of getting on a commercial basis ahead of the others who are known to be working in the field.

Very truly yours,

MBH:GD

CC: Mr. R. P. Russell

Mr. E. V. Murphree

Mr. H. W. Fisher.

ARNOLD EXHIBIT NO. 44

NOVEMBER 1, 1928.

Mr. CHARLES MITCHELL.

*President, National City Bank of New York,*

*New York City.*

MY DEAR CHARLIE: I have now had an opportunity to discuss fully the I. G. matter with my associates on the board, including Mr. Riedemann, who is now here, and our present thought is that it would be desirable for me to send a cable direct to Professor Bosch of the general character indicated in the attached draft.

If before this cable goes you would care to discuss the matter further with Messrs. Riedemann, Clark and myself, we would be very glad to come over to your office tomorrow morning if you found it convenient to see us before eleven o'clock. If, however, from your standpoint there is no reason why the cable should not go in its present form, won't you please have your secretary telephone me this afternoon, when it will be despatched.

Yours very truly,

WCT: SMM

enclosure.



(Draft of Cable)

Please accept my sincere thanks to you and your colleagues for the invitation to join the Board of the A. F. C. O. The present somewhat limited set-up of a company to hold shares in existing companies whose present and future operations are not directly related to the petroleum business would not of itself appeal to the S. O. Company from an investment standpoint as might a set-up sufficiently broad to include cooperation in those fields where we both have parallel interests.

In view of Dr. Schmitz's cable reply to Mitchell of October 29th I have the feeling that a personal discussion of the step you now have under consideration might be desirable before actually taken and I suggest for your consideration to postpone if possible definite decision until there has been an opportunity for personal discussion by the three interested parties. If, however, you have decided to proceed at once along the lines suggested by Mr. Mitchell then I am glad to accept your kind invitation since we take it as an expression of the desire on the part of yourself and colleagues to strengthen friendly relations between our two companies for future cooperation in fields where we have a mutuality of interests.

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 ARNOLD EXHIBIT No. 45

JUNE 2, 1933.

Memo for file.

The history of the transaction regarding the block of 500,000 shares of American-I. G. Chemical Corporation common "B" stock is as follows:

This block of shares was first entered on the books of American-I. G. as having been issued to Standard Oil Development Company. This appears to have resulted from a discussion between someone on the other side of the matter and Mr. E. M. Clark, at which it was pointed out that Standard Oil Development would be doing a favor for a Swiss corporation connected in some way with the I. G. interests if it would take title as Trustee for this stock. Mr. Clark saw no objection and indicated that Standard Oil Development would be willing to do so. The late Mr. von Schrenk thereupon secured the stock certificate and brought it down to my office with several letters as per the enclosed file. This was my first knowledge of the matter.

I objected to having Standard Oil Development act as trustee as had been proposed for the obvious reason that it had no interest of any kind in the American-I. G. Chemical Corporation and, therefore, should not concern itself as a corporation in any way with the affairs of the American-I. G. Chemical Corporation. Also, for the special reasons given in the annexed cablegram to Mr. Teagle, I thought it especially inappropriate for Standard Oil Development to enter into this matter even in the nominal or formal way proposed.

This cablegram to Mr. Teagle also carries the suggestion that he might properly act as a personal trustee. My reason for making this last suggestion was that American-I. G. Chemical Corporation would, of course, have absolute confidence in Mr. Teagle and could thus afford to dispense with all burdensome formalities in connection with the trusteeship; second, that Mr. Teagle was a member of the Board of American-I. G. Chemical Corporation and was reported to have some personal investment in the corporation, and, therefore, seemed to be a proper person to be approached with a request of this kind.

Pending settlement of the question with Mr. Teagle the American-I. G. Chemical Corporation appears to have left the shares on its stock books in the name of Standard Oil Development Company although Standard Oil Development never took delivery of the shares or executed the receipt or declaration of trust which it had been requested to sign.

Some time after Mr. Teagle's return from Europe the share certificate for 500,000 Common B shares was brought to his office by the late Mr. von Schrenk and in the presence of Mr. Clark and Mr. Howard it was delivered to Mr. Teagle by Mr. von Schrenk. Mr. Teagle endorsed it and returned it to Mr. von Schrenk. Mr. von Rath states that Mr. Teagle's endorsement on this share

certificate was witnessed by Mr. E. M. Clark. Mr. Teagle was not asked to, and did not execute, any receipt or declaration of trust as had been proposed for Standard Oil Development.

It was expressly stated by Mr. von Schrenk at the time of delivery and re-delivery of the certificate that Mr. Teagle was to take and hold record title to the stock temporarily only, as trustee for a foreign company, a client of Mr. von Schrenk's, and that Mr. von Schrenk would on behalf of his client, relieve Mr. Teagle of all further responsibility in connection with the stock, and of all liability in the matter.

I have discussed the transaction as above with Mr. Wellman and he agrees that there is no reason whatever for Mr. Teagle to concern himself any further. It is understood that the stock in question has never paid any dividends and that record title to it has passed from Mr. Teagle's name to the name of someone else.

F. A. H.

#### ARNOLD EXHIBIT NO. 46

#### AUSFÜHRUNGEN DES SACHVERSTÄNDIGEN DR. BOSCH ÜBER DIE PRODUKTIONS- UND ABSATZVERHÄLTNISSE DER I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT, FRANKFURT A. MAIN

Eingereicht: 3, Dezember 1928. Nachgeprüft und ergänzt: 7. Mai 1930

#### PRODUKTIONSVERHÄLTNISSE

#### Betriebsverhältnisse und Produktion

Zur I. G. Farbenindustrie Aktiengesellschaft haben sich folgende Firmen der Interessengemeinschaft der deutschen Teerfarbenfabriken am 2. Dezember 1925 im Wege der Fusion zusammengeschlossen Badische Anilin- und Soda-Fabrik, Ludwigshafen a. Rhein, Farbenfabriken vorm. Friedr. Bayer & Co., Leverkusen, Farbwerke vorm. Meister Lucius & Brüning, Höchst a. M., Aktiengesellschaft für Anilinfabrikation, Berlin, Chemische Fabrik Griesheim-Elektron, Frankfurt a. M., Chemische Fabriken vorm. Weiler-ter Meer, Uerdingen Niederrhein. Im Jahre 1926 wurden durch Fusionsverträge die Farbwerke Mühlheim vorm. A. Leonhardt & Co., A.-G. Mühlheim a. M. und die Köln-Rottweil-Aktiengesellschaft in die I. G. Farbenindustrie Aktiengesellschaft aufgenommen.

Die Zahl der Fabrikationsstätten der I. G. Farbenindustrie Aktiengesellschaft einschließlich der Ammoniakwerk Merseburg G. m. b. H. betrug:

Jahr	Insgesamt	Davon arbeitend
1925 .....	37	36
1926 .....	143	42
1927 .....	46	45
1928 .....	46	45
1929 .....	46	43

<sup>1</sup> Zunahme durch Fusion Köln-Rottweil und Farbwerke Mühlheim.

Name	Kapital	Anteil der I. G.	Haupterzeugnisse
Ammoniakwerk Merseburg G. m. b. H., Leunawerke	135,000,000	101,250,000	Stickstoff und Benzin
Rheinische Stahlwerke, Essen-Ruhr	150,000,000	56,000,000	Steinkohlen, Koks und Nebenprodukte
Leopold Cassella & Co. G. m. b. H., Frankfurt a. M.	60,880,000	49,480,000	Farbstoffe und Pharmazeutika (Fabrik an uns verpachtet)
Gewerkschaft Auguste Viktoria, Hüls (Kr. Recklinghausen)	18,550,000	16,880,500	Steinkohlen, Koks und Nebenprodukte
A. Riebeck'sche Montanwerke A.-G., Halle a. S.	50,000,000	15,737,600	Braunkohlen, Briketts, Teer, Öl, Paraffin, Kerzen
Aktiengesellschaft für Stickstoffdünger, Knapsack b. Köln	8,000,000	7,998,000	Karbid, Essigsäure, Natrium, Kalkstickstoff
Kalle & Co., Aktiengesellschaft, Wiesbaden-Biebrich	6,000,000	5,959,000	Zellophan, Ozalid
Duisburger Kupferhütte, Duisburg	6,000,000	5,431,200	Roheisen, Agglomerat, Kupfer, Zinkoxyd, Glaubersalz, Sulfat
Dr. Alexander Wacker, Ges. für Elektrochemische Industrie m. b. H., München	7,500,000	3,750,000	Ätznatron, Trichloräthylen, Karbid, Essigsäure und Derivate, Ferrosilizium
Chemische Werke Lothringen G. m. b. H., Gerthel-Westf.	6,000,000	3,000,000	Stickstoffverbindungen
Deutsche Celluloidfabrik, Eilenburg	5,000,000	2,714,000	Nitrozellulose, Zelluloid, Lacke
Aceta G. m. b. H., Berlin-Lichtenberg	2,000,000	2,000,000	Kunstseide
Hölkenside G. m. b. H., Barmen	3,000,000	1,500,000	Kunstseide
Gewerkschaft Elise II, Halle a. S.	5,000,000	5,000,000	Braunkohlen
Grube Auguste bei Bitterfeld Aktiengesellschaft, Halle a. S.	2,400,000	2,280,000	Braunkohlen
Deutsche Grube bei Bitterfeld Aktiengesellschaft, Bitterfeld	2,500,000	2,275,000	Braunkohlen
Zuckerfabrik Körbisdorf Aktiengesellschaft, Körbisdorf, Hauptbesitz: Braunkohleneruben	2,700,000	2,441,400	Braunkohlen
Wachberg-Gruppe, Braunkohlenwerke, Frechen bei Köln	1,070,000	1,003,730	Braunkohlenbriketts
Terra-Film A. G., Berlin SW68	3,000,000	2,155,200	Filme

Als Aktiengesellschaft können wir bei dem grossen Umfang unseres Aktienkapitals im allgemeinen nicht feststellen, in wessen Händen sich die Anteile unserer Gesellschaft befinden, insbesondere, da die Aktien meist als Depots der Banken erscheinen. Gewisse Aktienpakete befinden sich in Händen von folgenden Firmen: Rheinische Stahlwerke, Essen, Norsk Hydroelektrisk Kvælstofaktieselskab, Oslo, Leopold Cassella & Co. G. m. b. H., Frankfurt a. M.

Bei der Ausgestaltung der von der I. G. im Ausland angeknüpften Beziehungen und bei den vielfachen internationalen Verhandlungen der I. G. hat sich die Gründung von ausländischen Gesellschaften als notwendig erwiesen: So wurde Ende Juni 1928 die Internationale Gesellschaft für Chemische Unternehmungen A.-G. (I. G. Chemie) (Société Internationale pour Entreprises Chimiques S. A.) in Basel gegründet. Der Zweck der Gesellschaft ist die Beteiligung an Industrie- und Handelsunternehmungen aller Art, besonders der chemischen Branche, im Inund Ausland. Bisher hat sich die Gesellschaft beteiligt an der Norsk Hydroelektrisk Kvælstofaktieselskab, Oslo, der Durand & Huguenin, Basel, der Teerfarben A.-G., Zürich (Verkaufsorganisation der I. G. Farbenindustrie A.-G.), und der American I. G. Chemical Corporation, New York.

Das Aktienkapital beträgt jetzt insgesamt nominal 290 000 000 Fr., wovon 250 000 000 Fr. Stammaktien und 40 000 000 Fr. 6prozentige Vorzugsaktien sind. Nach Genehmigung durch die ausserordentliche Generalversammlung der I. G. vom 20. Februar 1929 hat diese mit der I. G. Chemie, Basel, einen Dividenden-Garantievertrag abgeschlossen, wonach dieser Gesellschaft für ihre Stammaktien jeweils eine Dividende in Höhe desjenigen Dividendensatzes garantiert wird, den die I. G. für das gleiche Geschäftsjahr auf ihre Stammaktien, ohne Abzug der Kapitalertragsteuer, in Goldmark verteilt. Den Inhabern von I. G.-Stammaktien bzw. I. G.-Teilschuldverschreibungen vom Jahre 1928 wurde auf die Aktien der I. G. Chemie, Basel, ein Bezugsrecht im Verhältnis von 500 Fr. Aktien der I. G. Chemie zu 6000 RM. Aktien bzw. 12 000 RM. Teilschuldverschreibungen vom Jahre 1928 der I. G. zum Kurse von 150% angeboten. Dieses Bezugsrecht wurde auf Grund der bestehenden Verträge auch den Inhabern der Stammaktien der

Dynamit Aktiengesellschaft vorm. Alfred Nobel & Co., Hamburg, Köln a. Rh., der Rheinisch-Westfälischen Sprengstoff-Actien-Gesellschaft, Köln der Aktiengesellschaft Siegener Dynamitfabrik, Köln, der Gustav Genschow & Co., Aktiengesellschaft, Berlin, und der A. Riebeck'schen Montanwerke, Aktiengesellschaft, Halle a. d. S., in dem vertraglich festgelegten Verhältnis eingeräumt.

Am. 26. April 1929 erfolgte in den Vereinigten Staaten die Gründung der American I. G. Chemical Corporation, die für Unternehmungen der chemischen und verwandter Industrien in Amerika und anderen Ländern dienen soll. Die Gesellschaft hat ein autorisiertes Kapital von 6 000 000 Stück Stammaktien ohne Nennwert, eingeteilt in 3 000 000 Common Shares „A“, von denen 400 000 Stück begeben sind, und 3 000 000 Common Shares „B“, die vollständig begeben sind. Die Gesellschaft hat 30 000 000 \$ 5½prozentige, gegen ihre Stammaktien „A“ umwandelbare Teilschuldverschreibungen mit 20jähriger Laufzeit ausgegeben, die von der I. G. garantiert sind und bei ihrer Emission stark überzeichnet wurden. Bisher hat die American I. G. wesentliche Beteiligungen erworben, n. a. an der Agfa Anso Corporation und an den General Aniline Works, Inc. (früher Grasselli Dyestuff Corporation).

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ARNOLD EXHIBIT No. 47

MAY 27, 1930.

From Room No. 725.

To: HURLONIC, *London, England.*

For Walter C. Teagle. In view of fact that we have repeatedly denied any financial interest in American I. G. it seems to me to be unwise for us to now permit them to include us as stockholders in their original listing which is object of present transaction Stop It would serve their purpose to issue this stock to you personally under same conditions Stop Bosch and Schmitz are taking large blocks personally Stop Will this be agreeable to you as a temporary measure.

FRANK A. HOWARD.

Charge: Standard-I. G. Co.

FAH: CFG

EBG.

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ARNOLD EXHIBIT No. 48

APRIL 4TH, 1930.

Mr. E. M. CLARK,

*Building.*

DEAR MR. CLARK: I read the attached cable to Dr. Greif over the telephone this morning. He told me he was coming in to see you this afternoon, and would see me afterward. It may be that you can straighten the matter out with him without the necessity of his seeing me.

Yours very truly,

WCT-MUR

Enclosure. cable from F. A. Howard re Amer. I. G.

[Incoming message]

From: F. A. Howard, London.

To: W. C. Teagle, New York.

Dated April 4, 1930.

Time rec'd: 8:11 A. M. Date: April 4th.

Schmitz discussed with me yesterday at meeting The Hague the suggestion that chemical company's annual report should refer to interest our company Stop Schmitz strongly opposes this suggestion as tending to lead inquirers directly towards matter we have taken great precautions to keep confidential. Schmitz suggests that annual report says only that company holds marketable securities. Heinrich Riedemann and I fully concur with Schmitz not only for reasons stated but also for other reasons. Will you ask chemical company reconsider this matter and advise Schmitz.

F. A. HOWARD.

IIDE.

## ARNOLD EXHIBIT No. 49

AMERICAN I. G. CHEMICAL CORPORATION,  
521 Fifth Avenue, New York, May 6, 1932.

MR. WALTER C. TEAGLE,

*President, Standard Oil Company (New Jersey),  
26 Broadway, New York City.*

DEAR MR. TEAGLE: In pursuance of our today's discussion, I like to submit to you the following:

Our Company owned in May last year a total of

R. M. 38,403,500. face-value of 6% I. G. Farbenindustrie A. G. bonds at a cost price of 96.7%, equal to a total of \$8,807,516.14.

This investment represented at that time the only financial interest of our company in Germany. When in June last year, due to the circumstances known to you, a critical situation arose in Germany, we deemed it advisable to try to decrease our holdings in Germany or to dispose of them entirely.

After several negotiations we found the following as the only way to dispose of our 6% I. G. Farben bonds:

To exchange them into face value Sw.Fr. 27,150,000. fully paid common shares of I. G. Chemie including 1930 dividend. (You will find a detailed explanation of this transaction, which resulted in a profit for our Company of \$909,727.26, in the enclosed statement.)

You will remember that at that time it was not possible to submit this transaction to the Board for approval as we could not secure a quorum. Our Company therefore reserved the right to reverse the transaction in case it should not meet with the approval of the Board.

I. G. Chemie (i. e. International Company for Chemical Enterprises, Basle, Switzerland) is, as you know, a subsidiary of I. G. Farben, organized in 1928. I. G. Farben guarantees the payment of dividends on the common stock of I. G. Chemie at the same rate as declared for the corresponding business year on the common stock of I. G. Farben. Therefore, a holder of common stock of I. G. Chemie participates in the earnings of the world-wide business of I. G. Farben. As officially stated in the annual report of the I. G. Farben for 1931, the net income of I. G. Chemie for 1931 is sufficient to pay on its stock the same dividend which will be paid by I. G. Farben.

As mentioned above, the main reason which caused the transaction in June last year, was to dispose of our investments in Germany, due to the uncertain conditions. The course of events in Germany justified this transaction as under the exchange regulations promulgated by the German Government it becomes more and more difficult to convert R. M. dividends or R. M. interest into U. S. Dollars.

I feel that it is to the great advantage of our Company to continue its investment in I. G. Chemie, which permits us to have the total income of our Company available in U. S. Dollars.

In view of an offering before us, the Board of Directors of our Company has now the choice between the following two possibilities:

1. to reverse the transaction outlined above which would result in a decrease of the earnings of our Company by \$909,727.26. This would bring the net income of our Company for the year 1931/1932, down to \$808,————<sup>1</sup> as compared with \$1,————<sup>1</sup> now. The interest on the debentures would therefore be carried 1½ times instead of 2 times as based on the present status.

2. or, to keep the above-mentioned investment in I. G. Chemie and to carry through different transactions, details of which you find on the enclosed memorandum, with the following results:

- (a) improvement in earnings by about \$200,000. p. a.
- (b) improvement of our cash position by about \$950,000.

(c) the market depreciation of all investments of the company would decrease from \$8,367,461.66 to \$4,475,297.03.

<sup>1</sup> Illegible on original.—Ed.

I recommend to choose the second alternative and should appreciate an expression of your viewpoint at your earliest convenience.

With kind regards,

Very sincerely yours,

W. GREIF, *First Vice President.*

GFF: EL

*American I. G. Chemical Corporation—Exchange of I. G. Farben Bonds for I. G. Chemie Common Stock, June 30, 1931.*

**I. G. Farben Bonds:**

Sale:

RM 38,403,500 @ 99% plus Accrued Interest	\$9,600,875.00
Less Accrued Interest (after tax)	493,561.78
	<u>9,107,313.22</u>
Cost—96.7%	<u>8,807,516.14</u>

Realized Profit----- \$299,797.08

**I. G. Chemie Common:**

SF 27,150,000 fully paid shares Common including 1930 dividend, cost \$175 per SF 500 share	\$9,502,500.00
We received 12% Dividend in cash (after tax)	609,930.18

Total Profit----- 909,727.26

**American I. G. Chemical Corporation—Change in earnings thru suggested transactions—Income from securities sold:**

Agfa Anseo Common 112,900 shs. cost \$1,493,662.50. Income	-----
Treasury Stock Common A 816 shs. cost \$31,638.13. Income	-----
Treasury Bonds 1,974,000; cost \$1,913,735.13. Savings in Interest—Annual	\$108,570.00

Total Investment—Income----- 108,570.00

**Income from Securities Purchased:**

146,011 shs. Standard Oil (N. J.) @ 10. Investment \$1,462,300—	
Income	292,022.00
Increase in Cash (Net) 945,659.47, 1%	9,456.60
	<u>301,478.60</u>

Net Increase in Income----- 192,908.60

*American I. G. Chemical Corporation—Investments before transactions, March 31, 1932*

	Cost per share	Total cost	Market per share	Total market	Excess of market
Gen. Aniline Wks., Inc., 130,000 sh's Common	\$169.23	\$22,000,000.00	\$169.23	\$22,000,000.00	-----
Agfa Anseo Corp., 112,900 sh's Common	13.21	1,493,652.50	21½	282,250.00	\$1,211,402.50
Agfa Anseo Corp., 30,504 sh's Pfd.	80.31	2,449,779.41	45	1,372,680.00	1,077,099.41
I. G. Chemie, SF 77 150,900 sh's C.	169.72	25,272,697.70	160.50½	23,898,369.75	1,374,327.95
Drug Incorporated, 18,800 sh's Common	66.97	1,259,293.50	48.00	902,400.00	356,893.50
Unyte Corporation, 6,500 shares Common	1.00	6,500.00	1.00	6,500.00	-----
		<u>52,481,923.11</u>	-----	<u>48,462,199.75</u>	<u>4,019,723.36</u>

*American I. G. Chemical Corporation—Other marketable securities before transactions March 31, 1932*

	Cost per share	Total cost	Market per share	Total market	Excess of market
Standard Oil (N. J.), 200,100 sh's Common	\$50.005	\$10,005,956.00	28 $\frac{3}{8}$	\$5,677,837.50	\$4,328,118.50
E. I. du Pont de Nemours, 1,100 shares Common	56.97	62,669.80	45 $\frac{3}{8}$	49,912.50	12,757.30
Allied Chemical & Dye, 600 shares Common	85.16	51,095.00	74 $\frac{1}{2}$	44,700.00	6,395.00
Union Carbide & Carbon, 1,100 shares Common	28.55	31,405.00	28 $\frac{1}{8}$	30,937.50	467.50
		10,151,125.80		5,803,387.50	4,347,738.30
		<i>Cost</i>		<i>Market</i>	<i>Excess of market</i>
Investments		52,481,923.11		48,462,199.75	4,019,723.36
Other Marketable Securities		10,151,125.80		5,803,387.50	4,347,738.30
Total		62,633,048.91		54,265,587.25	8,367,461.66

*Change in Cash Position Thru Suggested Transactions*

Cash thru sale of 112,900 shares of Agfa Anseo @ 4	\$444,148.60
Cash thru sale of \$1,974,000 Debentures @ 95 $\frac{1}{4}$ & Interest	1,923,059.83
Cash thru sale of 816 shares of Common A Treasury Stock @ 50	40,751.04
	2,407,959.47
Payment for purchase of 146,011 shares of Standard Oil Co. (N. J.) @ 10	1,462,300.00
Net Increase in Cash	945,659.47

*American I. G. Chemical Corporation—Investments after transaction March 31, 1932*

	Cost per share	Total Cost	Market per share	Total Market	Excess of Market
Gen. Aniline Wks. Inc. 130,000 shares C'n	169.23	\$22,000,000.00	169.23	\$22,000,000.00	
Agfa Anseo Corp. 30,504 shs Pfd	80.31	2,449,779.41	45.00	1,372,680.00	\$1,077,099.41
I. G. Chemie SF 77,150,000 shs. C	169.72%	25,272,697.70	160.50	23,898,369.75	1,374,327.95
Drug Incorporated 18,800 shs. Common	66.97	1,259,293.50	48.00	902,400.00	356,893.50
Unyte Corporation 6,500 shares Common	1.00	6,500.00	1.00	6,500.00	
		50,988,270.61		48,179,949.75	2,808,320.86

OTHER MARKETABLE SECURITIES

	Cost per share	Total Cost	Market per share	Total Market	Excess of Market
Standard Oil Co. (N. J.) 346,111 shares Common	33.13	\$11,468,256.00	28 $\frac{3}{8}$	\$9,820,899.63	\$1,647,356.37
E. I. Dupont de Nemours 1,100 shares Common	56.97	62,669.80	45 $\frac{3}{8}$	49,912.50	12,757.30
Allied Chemical & Dye 600 shares Common	85.16	51,095.00	74 $\frac{1}{2}$	44,700.00	6,395.00
Union Carbide & Carbon 1,100 shares Common	28.55	31,405.00	28 $\frac{1}{8}$	30,937.50	467.50
		11,613,425.80		9,946,449.63	1,666,976.17

*American I. G. Chemical Corporation—Investments after transaction March 31, 1932—Continued*

	Cost	Market	Excess of Market
Investments.....	\$50,988,270.61	\$48,179,949.75	\$2,808,320.86
Other Marketable Securities.....	11,613,425.80	9,946,449.63	1,666,976.17
Total.....	62,601,696.41	58,126,399.38	4,475,297.03

*American I. G. Chemical Corporation—Sale of 112,900 shares Agfa Ansco Common*

	Cost
112,900 shares Agfa Ansco Common.....	\$1,493,652.50
Sale @ \$4.00 less Tax & Commission.....	444,148.60
Loss.....	1,049,503.90

*American I. G. Chemical Corporation—Sale of \$1,974,000 Debentures*

Cost of \$1,974,000 Debentures at 96 $\frac{1}{4}$ .....	\$1,899,607.29
Sale of \$1,974,000 Debentures at 95 $\frac{1}{4}$ .....	1,880,235.00
Loss.....	19,372.29

*American I. G. Chemical Corporation—Sale of 816 Shares Common A Treasury Stock*

Cost of 816 shares, \$38.77.....	\$31,633.13
Sale @ \$50 less tax.....	40,751.04
Net Profit.....	\$9,112.91

*American I. G. Chemical Corporation—Purchase of 146,011 Shares Standard Oil of N. J.*

		Yield
Cost \$10 per share plus Commission and tax.....	\$1,462,300	20%
Previous Holdings:		
Cost \$50 per share 200,100 shares.....	10,005,956	4%
Totals 346,111 shs. @ 33.13.....	11,468,256	6.04%

## ARNOLD EXHIBIT No. 50

THE NATIONAL CITY BANK OF NEW YORK,  
New York, May 27, 1932.

DEAR WALTER: Acknowledging your note of yesterday, I return herewith Dr. Friedemann's memorandum.

I agree in general with his conclusions and his proposed discussion with Professor Bosch and Dr. Schmitz, but the preliminary statements of facts in the case are not entirely accurate. As to myself, when it was proposed to exchange the I. G. debentures for I. G./Chemie shares, I knew about it and seriously questioned whether it was either a businesslike or proper exchange inasmuch as it involved the acceptance of equity securities for fixed maturity obligations. I was later told that the exchange had been put through, but subject to the approval of the Board, and that if the Board objected the transaction would be reversed. Later and from time to time, as a Board member, I was urged to agree to the transaction, especially on the argument that it became impossible, owing to the exchange difficulties in Germany, to get transfer of debenture interest out of Germany, while on the other hand the I. G./Chemie was earning its dividend exclusive of contribution from the German I. G. and that there was no impediment to the transfer of dividends out of Switzerland, and further, that the German I. G. had an obligation to the I. G./Chemie with respect to the maintenance of dividends that practically constituted an obligation of German I. G. that made the dividend on I. G./Chemie shares secure.



I then asked for two things—first, a complete exposition of the assets and earning power of the I. G./Chemie and, secondly, a copy of the contract constituting the obligation as between the German I. G. and the I. G./Chemie. The first was refused upon the authority of Dr. Schmitz, who sent word that when he came over here he would be glad to tell me all about it. The second was produced. The contract showed that German I. G. was under obligation to contribute to I. G./Chemie yearly to the point where the dividends of the latter might equal the dividends of the former for that year, and that German I. G. had the right to cancel that obligation at any time by offering to exchange I. G./Chemie shares for their own shares. I thereupon said that I would vote favorably for the exchange if the German I. G. would agree with the American I. G. that they would guarantee to the latter that the revenue from I. G./Chemie shares would not be less than the interest on the debentures originally held, and that, in case at any time the German I. G. should elect to cancel their contract with the I. G./Chemie and offer to exchange shares, as provided in the contract, they would at that time reverse the transaction with the American I. G., giving to the latter the debentures that had been exchanged for I. G./Chemie shares. This was refused by Dr. Schmitz on the ground that the German I. G. no longer was in position to reverse the transaction as they did not have control of the I. G. debentures which had been exchanged.

In view of this and the fact that there was a refusal to produce a full statement of the portfolio of the I. G./Chemie I flatly refused to approve as a Director the act of the Executive Committee in supporting the original exchange of German I. G. debentures for I. G./Chemie shares, and I presume that you were guided by the same motives as I in voting "no" at the meeting this week on the call for approval of the transaction.

I feel strongly with you that Professor Bosch and Dr. Schmitz should thoroughly understand how anxious we are to be of assistance to them in bringing about a development of the chemical industry along most approved lines in the United States, but that they should realize just as fully the fact that you and I are in a very embarrassing situation whenever transactions are proposed as between the German I. G. and the American I. G., and at such times we must be fully informed; that we must act solely in the interest of American I. G.; and that no transactions of that nature should be put through the Board except with our affirmative vote. If this attitude on your part and mine is in any way embarrassing to them, I feel they should say so frankly so that we, and Mr. Ford as well, may consider withdrawing from the Board.

Assuming that you and I are at one in the foregoing statement of facts and conclusions, I have no objection whatsoever to Dr. Riedemann presenting my views, as well as yours, when he sees our good friends in Germany.

Yours very truly,

C. E. MITCHELL.

MR. WALTER C. TEAGLE,

26 Broadway, New York, New York.

Enclosure.

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ARNOLD EXHIBIT No. 51

Date: 23rd November, 1934.

From Room No. 2914.

To FRANK A. HOWARD, *Bedford Petroleum Company, Paris, France*. Referring your cable November twenty-second Mitchell's retirement and death of Metz and Warburg leaves Weiss and myself as only two active Americans on Board STOP Balance of Board follow instructions received from other side without exercising their own discretion STOP Directors' meetings held very infrequently of late owing to very real difficulty of obtaining quorum STOP Owing to increase in nationalistic feeling everywhere seriously question desirability in friends' interest of indefinite continuance of present set-up STOP My own recommendation would be that at least three outstanding Americans should now be added as Board members and that owing to amount of time each year I am out of city I should resign and E. M. Clark elected to succeed me STOP Bosch dining with me December third you may feel it would be better for me to discuss matter with him than for you to take it up with Schmitz please advise STOP One hundred thirty-four thousand shares Jersey stock stands in name of Greuter and Company of Basle balance of holdings in Jersey of something over four hundred thousand shares now in name of American I. G.

W. C. TEAGLE.

## ARNOLD EXHIBIT No. 52

[Incoming message]

From: F. A. Howard, London.  
 To: W. C. Teagle, New York.  
 Dated: Nov. 29/34 RA 56.  
 Time rec'd: 4:36 PM. Date: Nov. 29th.  
 CDE

Attempted persuade Schmitz make change suggested American IG board and have some support from Von Kniერიem but doubt if Schmitz is yet convinced (STOP) His argument is that this board will have nothing of consequence to decide for indefinite time therefore no reason to make change now (STOP) He has promised to telegraph Bosch his views so Bosch can discuss the matter fully with you (STOP) My impression is that if you take firm stand that Clark should replace you it can be done without ill feeling also I believe this certainly wise under present conditions since it will tend minimize chauvinistic comments in both countries should there be any public interest aroused in the relations of the two companies.

F. A. HOWARD.

## ARNOLD EXHIBIT No. 53

1ST APRIL 1935.

Personal and Confidential:

DEAR DR. BOSCH: I have just returned from a short session of the Board of the American I. G. Chemical Company, and while my thoughts are still on this subject I want to refer again to our conversation of last Autumn. I was the only one present outside of those active in the management of the company. As I told you when I last had the pleasure of seeing you here, I feel it is important that steps be taken to enlarge the outside representation and influence of this Board, and at the same time that this is done I believe it would be in our common interest for someone else to replace me. It seems to me that the same reasons of policy which led you to ask me to serve, and led me to accept in the first instance, now dictate my retirement.

Mr. Howard tells me that Dr. Schmitz told him when they last discussed the matter in London that, if necessary, he would come to New York this Spring and work out this American I. G. Board question.

Knowing how busy Dr. Schmitz must be, I hesitate to ask him to make a special trip for that purpose; but I really feel it is not advisable to postpone the matter beyond this Spring. I expect to be in New York, with occasional short visits to Washington, until June, but I shall be away for rather lengthy absences most of the time from then until Autumn. Unless the matter is to be postponed until next Autumn, which I think is highly inadvisable, it should therefore be settled between now and the first of June insofar as my personal contact with it is concerned.

With very kindest regards,  
 Yours truly,

(Signed) W. C. TEAGLE.

Dr. Carl Bosch,  
*Badische Anilin und Soda Fabrik,  
 Ludwigshafen-on-the-Rhine,  
 Bararia, Germany.*

wet-smm

## ARNOLD EXHIBIT No. 54

HERMANN SCHMITZ,  
*Berlin N. W. 7 Unter den Linden 78, May 11, 1935.*

Mr. W. C. TEAGLE,  
*30 Rockefeller Plaza, New York.*

DEAR MR. TEAGLE: Dr. Bosch has discussed with me your letter of 1st April and asked me to write you about the matter referred to.

I understand from Dr. Bosch that you might be willing to continue your directorship in the American I. G. Chemical Corporation if another gentleman of your group, perhaps Mr. Clark, would come on the board so that you need not assist all the meetings.

We would of course be delighted to do this and as soon or later our relationship to your Company by the shareholding might be published f. i. through the stock exchange commission, we think that this would be a reason for you too to continue your directorship.

I do not yet know whether I shall find the time to come over for a short trip to New York, but I shall let you know as soon as I can fix a date.

Otherwise I should be pleased to have your reaction by letter.

Please remember me to Mrs. Teagle and accept kind regards also on behalf of Dr. Bosch.

Yours truly,

H. SCHMITZ.

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ARNOLD EXHIBIT No. 55

JUNE 6, 1935.

DEAR DR. SCHMITZ: I acknowledge with thanks your letter of May 11th, and while I appreciate your readiness to ask Mr. Clark to join the American I. G. Board, I do not believe that this would in itself meet the situation either from the standpoint of the American I. G. or from my personal standpoint.

At the time of the organization of the I. G. the membership of the Board included, in addition to the gentlemen mainly affiliated with the I. G. interests, the following group, whose principal affiliations were quite independent of the I. G.: Edsel Ford, C. E. Mitchell, Paul Warburg, W. E. Weiss, and myself. This group was sufficiently large and diverse in experience and interests to make it reasonably sure that no question brought before the Board could fail to be examined from every standpoint. I believe that under the circumstances of the organization and financing of the American I. G., the provision of such a Board was especially wise, and I was glad to serve on it, feeling that thereby I might be assisting you in meeting the situation and that I could properly assume my full share of the responsibility as a member of such a Board without sacrifice of my other interests.

The present situation is entirely different. Edsel Ford has never been able to attend any meeting of the Board, so far as I know. Mr. Warburg is dead and Mr. Mitchell has resigned. Nothing has been done to fill the vacancies. In place of five active directors of diverse independent affiliations, there are but two—Mr. Weiss and myself. I do not feel it is possible for the Board to fulfill your original intention under these conditions, and I am certain that I cannot assume the greatly increased responsibilities which the present situation places upon me. On the contrary, the pressure of other affairs makes it impossible for me to now give to the I. G. Board even the amount of time I first contemplated would be necessary.

I therefore urge upon you most seriously that you take immediate steps to do two things:

First: To fill the vacant places of Messrs. Warburg and Mitchell which men of similar rank and experience, and independence of affiliations and views.

Second: At the same time, or as soon as practicable thereafter, to permit Mr. Clark to replace me on the Board.

I realize that the recent increase in your own responsibilities at home is going to make it more difficult than ever for you to come to New York; but, if your visit is impossible, then I strongly urge that you find some means of carrying out the suggestions I have made without holding them over for a visit to New York. You may, of course, count on my fullest assistance in this matter.

With very kindest regards, both to yourself and to Dr. Bosch, I am,

Very truly yours,

(Signed) W. C. TEAGLE.

DR. HERMANN SCHMITZ,

*Unter den Linden 78*

*Berlin N. W. 7, Germany.*

## ARNOLD EXHIBIT No. 56

PARIS, 19th February, 1938.

Mr. H. VON RIEDEMANN.

*St. Moritz.*

DEAR MR. RIEDEMANN: The Securities & Exchange Commission in the United States has just been investigating the American-I. G. Chemical Company to determine whether or not it is an "investment trust" within the meaning of the Commission's regulations. In the course of this investigation, they called Mr. Teagle as a witness, and asked him questions along two general lines:

(1) what was the actual ownership and control of the American-I. G. Chemical Company?

(2) what was the explanation of certain very peculiar financial transactions reflected on the books of the American-I. G. Chemical Company?

Mr. Teagle was not able to give them any satisfactory information on either of these points. His apparent lack of any real knowledge of the ownership or business of the Company of which he was one of the Directors, and of which the records indicated he was the owner of 500,000 shares, as reported in the newspapers, created a very unfavorable impression.

As you know, we have been trying for nearly three years to get Mr. Teagle off the Board of the American-I. G. Chemical Company. As a matter of fact, I thought that he had gotten off the Board at the time Mr. Clark went on, since it was my own suggestion that Mr. Clark should replace him.

Guy Wellman prepared a memorandum on this whole matter which I was to bring to you, but he was unwilling to release it until Mr. Teagle had approved it. I believe it will probably come in the next mail. I am afraid that one of us, or both of us, will have to have some pretty straight talk with Geheimrat Schmits about this American-I. G. Chemical business. I shall be in Berlin on Monday at the Adlem, and shall endeavor to find out what the Geheimrat's plans are for the next few weeks. I shall also enquire as to Dr. Bosch's whereabouts, since I believe Mr. Teagle feels he has an especial right to turn to him for help on this matter.

I will write you again from Berlin.

With best regards,

Your very truly,

FRANK A. HOWARD.

FAH/WAG.

## ARNOLD EXHIBIT No. 57

FEBRUARY 10, 1938.

## MEMO RE AMERICAN I. G.—SECURITIES EXCHANGE COMMISSION INVESTIGATION OF INVESTMENT TRUSTS

This Commission began its investigation of American I. G. about one year ago. An informal hearing was had in July at which Messrs. Schmitz and Duisberg were questioned, with the result that their statements that American I. G. is apparently owned by Swiss, Dutch, and English record shareholders was not accepted by the Commission; nor was the correlative statement that they did not know of any I. G. Farben ownership of financial interest in American I. G.

A formal hearing in this case was held February 2, to which Mr. Teagle was also summoned. The purpose of this hearing was to make a sworn record, as complete as possible, on which the Commission could report to Congress, along with other companies concerned, with recommendations, if any, for needed legislation.

Informally Mr. Teagle and I were told by the attorney for the Commission (Mr. Schenker) that Messrs. Schmitz and Duisberg gave him absolutely no help and seemed incredibly uninformed about their controlling shareholding interests—some of whom had declared by letter to the Commission that they held as nominees and were not at liberty to disclose their principals.

The Commission wants to know the true foreign ownership since American I. G. is a chemical company. In case of any war anywhere this ownership would be wanted by the United States Government.

I think this attorney is satisfied that American I. G. is owned and managed in the ultimate interest of I. G. Farben or others allied with it.

Mr. Teagle testified to the I. G. Farben inception of American I. G. as the record of the National City Company and its circular of issue of American I. G. debentures states. He answered a question from Commissioner Haley to the effect that all he could say of his own knowledge is that American I. G. is foreign owned.

Mr. Wellman explained to Mr. Schenker that any conclusion by the Commission that American I. G. is, or is probably, owned by I. G. Farben or allied interests, may well result in an ownership by the German Government with all the attendant risks to the American owners of the twenty-five million of American I. G. debentures. A finding that it is "foreign owned" would probably not be objectionable from this standpoint.

It is a real possibility that if, in another war, Germany and U. S. A. should again be enemies the non-German financial interest in American I. G. shares would have to be shown to the satisfaction of the United States Government to escape seizure as German-owned property. This is only Mr. Wellman's own surmise. It is based on the facts (a) that I. G. Farben admittedly caused the organization of American I. G. to take over certain of its American interests early in the year 1929 and that the proposed arrangements were later carried out by Grentert & Company of Basel, which has since continued in an important relationship to American I. G.; and (b) there has been no proof or explanation offered as to the circumstances of this substitution, or its legal effect as termination of this admitted I. G. Farben interest. Under these circumstances, plus the directorships held by I. G. Farben executives on the board of American I. G. (even though explained as the consequence of the continuing guarantee by I. G. Farben of the American I. G. debentures), it is Mr. Wellman ventures, quite likely that there would be a seizure as indicated above with full opportunity to show the non-German financial interest in American I. G. shares.

Mr. Teagle as a director was placed in a most embarrassing position at the hearing and also in press releases because he did not know the beneficial ownership of any of the large blocks of American I. G. shares. To the public, at any rate, it seems impossible that a man in his position would not know something as to who owns the company. It seems almost as if Mr. Teagle had had second sight in that all of the things mentioned in the memorandum of May 26, 1932, were stressed in the examination.

The American I. G. at one time owned \$23,000,000 cost value of the shares of I. G. Chemie, and for Duisberg and Schmitz to say in effect that they knew nothing about the holdings of this company and that they had made the investment entirely on the recommendation of Dr. Schmitz is just a plain dereliction of their duty as directors. Mr. Teagle and Charley Mitchell are on record at the meeting of May 25, 1932, as protesting against the purchase of this stock on this account. Furthermore, it is difficult to see how Schmitz and Duisberg could justify the purchase of I. G. Chemie shares at a price at one time \$30 above the market. There has been a great deal of agitation here over the misuse of investment funds, especially where a so-called rotary interest is involved, as in the case of American I. G. where one of its principal stockholders is I. G. Chemie and vice versa.

Had Duisberg and Schmitz been a little more open in their testimony in the informal meetings and told why some of these transactions were made, I doubt very much if there ever would have been a public hearing and Mr. Teagle dragged into it, and as they were the ones active in the management of the company when the transactions were made, it is hard to believe that they did not know the reason for them. Mr. Teagle, of course, could honestly say that he did not know, as he did not hear of them until long after they had taken place. It might be allowed that these deals on the whole up to the present were very favorable to American I. G., but this alone is no defense. There is little doubt in our minds here that the sale of Standard Oil Company (New Jersey) at \$10 per share was in order to bolster up the assets of the company at the time when the Agfa Ansco had gone sour.

It seems to us also that the best thing Mr. Teagle can do is to resign from the American I. G. for, while the present inquiry, I believe, is closed, we have certainly not heard the last of it. It may be contended that the S. E. C. is poking into things that are none of its business, but after all, they take the attitude that the company raised \$30,000,000 from the American public and they have a right to know what has been done with this money.

## ARNOLD EXHIBIT No. 58

\* \* \* the Internationale Gesellschaft of Switzerland, then the Banque Federale, L. D. Pickering and the directors got 300,000 shares, and then there was 500,000 shares issued to you, and we will discuss that in a moment.

Now, you notice that although there had been shifts in the record holders of the Class A and Class B shares, substantially they are the same record holders from the inception of the corporation to the present time, is that not so?

A. As far as I know.

Q. And you have been on the board continuously from the date of its inception, April 1929, to the present time, and through that entire period you say you did not know who the real owners of the Class A and Class B stock, which is the voting stock of the American I. G. Corporation, were?

A. Well, that is not quite correct. I did not go on the board in April 1929.

Q. When did you go on?

A. I went on the board in May.

Q. May of 1929?

A. May 25th. At the organization meeting that you refer to in April I was not present and did not attend, although I was elected a director at that meeting.

Q. Well, at any event, throughout your entire tenure of directorship you say you did not know who the controlling owners of American I. G. Chemical Corporation were?

A. That is correct.

Q. And you still do not know?

A. That is correct.

Q. So that leaves us in this situation, does it not, Mr. Teagle,—and I would like to discuss that a little,—that here was this corporation which controls 100 percent of a very substantial chemical company in this country, is that not so?

A. Yes.

Q. And the Aniline and the AGFA ANSCO. It also has how many shares of the Standard Oil at the present time, do you know, Mr. Teagle?

A. Something over 340,000, I think. I do not know how much it is at the present time, but I know at one time it had 312,000.

Q. And the 312,000 shares of Standard Oil of New Jersey has a market value of approximately how much, would you say, Mr. Teagle?

A. Well, I do not know what the market closed at yesterday. I did not look at this morning's paper, but around 47 or 48.

Q. Well, it is approximately \$15,000,000?

A. That is correct.

Q. And as I computed it at one time, it would amount to approximately 1.9 of the total outstanding of the entire Standard Oil of New Jersey? How many shares are outstanding?

A. My recollection is it is around 26,000,000 shares, but I cannot carry the exact figures in my mind.

Q. Well, the effect of that is that the American I. G. is controlling the dye works, the AGFA ANSCO, and this substantial block of Standard Oil. Let me ask you this question. You can answer it if you want to or not. Aside from the Rockefellers are there any larger stockholders than the American I. G. in the Standard Oil?

A. I could not tell you without having the stock records before me. It would be just a guess. Certainly the employees in the company own a great deal larger block of stock than this amount. I do not know. You cannot tell these estates divided up.

Q. But it certainly is a very substantial block of stock?

A. It is a good size block of stock, certainly.

Q. And we do not know, and you do not know at the present time who controls that corporation, is that not so?

A. That is correct, yes.

Q. Have you ever made any attempt, Mr. Teagle, to ascertain who were really the beneficial owners of the Class A and Class B stock?

A. No, sir.

Commissioner HEALY. When you say you do not know who controls it, Mr. Teagle, it is apparent it is controlled by European interests, is it not?

The WITNESS. Well, I think that would be a safe assumption.

Commissioner HEALY. That is about the only assumption you can draw from the list of stockholders.

The WITNESS. That is correct, certainly.

By Mr. SCHENKER:

Q. But precisely who those foreign interests are, if we predicate our conclusion on that assumption, you have never known and still do not know?

A. That is correct.

Q. Let me ask you just a general question, Mr. Teagle, and we would like to get the benefit of your experience. Do you consider that a healthy situation?

Mr. WILLIAMSON. Really I object to that. I take it this is a fact-finding inquiry, Mr. Examiner, and I do not believe this witness should be asked to draw conclusions here.

The EXAMINER. What comment do you wish to make, Mr. Schenker?

Commissioner HEALY. We have got to make recommendations to Congress on the subject of investment companies.

Mr. SCHENKER. I think Mr. Williamson loses sight of the fact that this is not an adversary proceeding. We were directed to make a study and report the results of our study to the Congress, and I do not know anybody's opinion in this country that I would rather have than Mr. Teagle's on a situation where a company, which may or may not be an investment company in our eyes, is an investment company and should be subject to the control of interests whom we do not know who they are, but if Mr. Teagle does not want to answer it, all right.

Mr. WILLIAMSON. I have the same high regard for his opinion on these subjects that you have, but I had not supposed that you would be going after opinion evidence here. You would have a day's work if you would go after facts known to the witness.

Mr. SCHENKER. I never knew, in law, that there was any objection to opinion evidence provided it was rendered by an expert, Judge.

Commissioner HEALY. Let me put it this way: I wonder if Mr. Teagle would feel like expressing an opinion as to whether we ought to recommend any legislation on the subject of foreign ownership of American investment companies?

Mr. WILLIAMSON. Well, if it is put on the basis that you have advised, if the question is put to Mr. Teagle on such a situation as that I could hardly object.

Mr. SCHENKER. That was the only purpose of my question.

The WITNESS. May I hear your question, the way you framed the question that you asked me?

By Mr. SCHENKER:

Q. The stenographer has it, but it was stated so perfectly by the Judge that I will not even modify it in any respect.

A. I wonder if you really want to ask me that question. I will put it up to you in this way: The Standard Oil Company of New Jersey, with which I am connected, is, through its subsidiaries, operating in most all of the countries all over the world and I would dislike very much to go on record with a statement here that could be used directly to our disadvantage in other foreign countries. So I am not really in a position to give my opinion.

Mr. SCHENKER. Under the circumstances, Judge, it is perfectly all right. We will just withdraw that question.

The WITNESS. Thank you.

Commissioner HEALY. I phrased my suggestion to Mr. Teagle "If he could do it." If he does not want to do it I do not think we ought to press him.

The WITNESS. You understand the position that I am in.

Mr. SCHENKER. That is perfectly all right.

By Mr. SCHENKER:

Q. Now, we have got the situation, Mr. Teagle, where certain interests,—and up to the present time we do not \* \* \*

## ARNOLD EXHIBIT No. 59

Q. Edward Greutert, and that is the Greutert & Company, and Augusta Sherman of Schaffhausen, resident of Zurich, and their capital in Swiss banks is 1,800,000. There is, no doubt, in your mind that these companies that I have enumerated are merely nominee companies and that the real beneficial owners are not those corporations, from the size of them?

A. I do not know anything about it, Mr. Schenker.

Q. Who asked you to go on the board, Mr. Teagle, do you remember?

A. Yes. I think I have already stated that Professor Bosch, Doctor Bosch asked me, in the first instance.

Q. Now, the record discloses that 500,000 common shares were issued to you. Were you the beneficial owner of those shares?

A. I was not.

Q. Do you know how it was that those shares got into your name?

A. No, I do not. All I know is that I had no interest in them whatsoever and they were only in my name a very short space of time, a relatively short space of time.

Q. There is one transaction which will be of some assistance to us, and that is the transaction involving the Standard Oil Company of New Jersey stock.

A. Yes, sir.

## ARNOLD EXHIBIT No. 60

\* \* \* of Greutert, is that not so?

A. That was shown.

Q. And Greutert said they could not disclose?

A. Yes.

Q. Now, in connection with the I. G. Farben, their letter of August 13th, 1937 addressed to you says:

"In reply to your favor of July 21st we beg to say that we have no direct or indirect participation either in the American I. G. Chemical Corporation nor in the other corporations mentioned in your letter.

"We beg to add, though that it does not correspond to our customs over here to give such information."

So that I. G. Farben did state——

A. May I hear that again?

Q. "In reply to your favor of July 21st we beg to say that we have no direct or indirect participation either in the American I. G. Chemical Corporation nor in the other corporations mentioned in your letter."

A. Yes, sir.

Q. That letter, of course, only states that I. G. Farben Corporation has no interest, is that not so?

A. This letter is a translation.

Q. That is right.

A. I will say the translation is correct.

Q. I do not know whether we have the original.

## ARNOLD EXHIBIT No. 61

\* \* \* noticed on the dividend checks, who signed the dividend checks that were sent to the foreign stockholders, what names appeared on the dividend checks?

A. Our dividend checks?

Q. Yes.

A. The officers authorized to sign these checks, and since I am treasurer, I sign them.

The EXAMINER. You mean the endorers, do you not?

MR. WILLIAMSON. He means the cashed checks when they come back.

The WITNESS. Frankly, I never looked at that.

By MR. SCHENKER:

Q. Will you have any objection to looking at the endorsements on these checks——

MR. WILLIAMSON. I do not know why we should.



The WITNESS. I have none whatsoever.

Mr. SCHENKER. That is all.

(Witness excused.)

Mr. SCHENKER. All right, Mr. Schmitz.

E. A. Schmitz, a witness called by and on behalf of the Commission, having been first duly sworn, was examined and testified as follows:

Direct examination by Mr. SCHENKER:

Q. Will you just give us your full name, residence, business address, and what your occupation is?

A. E. A. Schmitz, 795 Fifth Avenue, residence; business address 521 Fifth Avenue.

Q. Mr. Schmitz, when did you first become associated with the American I. G. Chemical Corporation?

A. I was born and received my early education in Germany. I attended the University in Frankfurt and the Technical High School in Dresden. In 1906 I came to America to study American conditions and to study here, and I attended the Carnegie Technical School, and in the course of time I liked here and stayed longer and finally became a citizen of this country, married, and so forth. In 1910 I became connected—in 1909—with Macbeth Evans Glass Corporation, where I was engaged in various activities.

Q. Coming down specifically to the time when you first became associated with the American I. G., when was that?

A. I became associated with them in 1933 as director, and later on—

Q. In what capacity did you become associated?

A. As director.

Q. Have you been a director since?

A. I have been, ever since.

Q. Let me ask you this question: Do you know who are the beneficial stockholders, if there are beneficial stockholders other than the record holders, of the Class A and Class B stock of American I. G. Corporation?

A. No, no more than the records we have here.

Q. So the only thing you know is who the record holders are and whether they are the beneficial owners or not, you do not know?

A. No.

Q. I think Mr. Dnisberg said you are related to the Schmitz's of the I. G. Farben?

A. That is right.

Q. You are a brother?

A. That is right.

Mr. SCHENKER. I would like to introduce into evidence a published balance sheet of I. G. Farben of Germany for the year 1936.

The EXAMINER. All right; we will receive it as Exhibit 3383.

(The balance sheet referred to was received in evidence and marked Commission's Exhibit No. 3383.)

Mr. SCHENKER. I have no further questions, Mr. Williamson.

Mr. WILLIAMSON. That is all.

Mr. SCHENKER. I would like the record to indicate we are appreciative of the full cooperation that was given to us in connection with our study of the American I. G. Chemical Corporation and that they have made available to us all of the information we asked.

The EXAMINER. Yes, we thank these gentlemen.

The hearing is now closed.

(Whereupon, at 3:10 o'clock p. m., the hearing in the above-entitled matter was closed.)

#### ARNOLD EXHIBIT No. 62

\* \* \* nection between the Standard Oil and I. G. Farben of Germany, as far as any stock relationship is concerned?

A. I do not believe I understand.

Q. Is there any connection between Standard Oil of New Jersey and I. G. Farben of Germany, as far as any stock connection is concerned?

A. No, not that I know of.

Q. Now, this hydrogenation process that you talk about, what corporation controls that today?

A. It is controlled by the Standard I. G.

Q. And who are the controlling stockholders of Standard I. G.?

A. Standard of New Jersey.

Q. That is a wholly owned subsidiary?

A. No, I think 20 per cent of the stock belongs to the I. G. Farben Industrie.

Q. So the only connection that the Standard has is in this indirect manner, where Standard and I. G. Farben are stockholders of Standard I. G., is it not?

A. That is my understanding of it.

Mr. SCHENKER. That is all I have.

Mr. WILLIAMSON. That is all.

Mr. SCHENKER. Thank you.

The EXAMINER. We will recess for five minutes.

(Whereupon a short recess was taken.)

ARNOLD EXHIBIT No. 63

FEBRUARY 16, 1938.

Mr. W. C. TEAGLE,

*Norias Plantation, McIntosh, Georgia.*

DEAR MR. TEAGLE: I have sent Mr. Riedemann the memorandum as written by Guy Wellman. Of course, I did not expect that he would show the memorandum to the I. G. people, but it was written in the vein that it was because I felt that Duisberg and Schmitz must have been acting on direct instructions from Germany and that the people there should know the position in which you were placed. They did not care how much you were embarrassed as long as they thought they were saving their own skins, and yet by their actions they really succeeded in doing just the opposite of what they wished to accomplish by antagonizing the S. E. C. After you had gone on the board and stayed there to oblige them, they should have done everything possible to keep you from being placed in the situation in which you were.

With kindest regards, I am,

Very truly yours,

[Sig'd] F. E. MOTT.

ARNOLD EXHIBIT No. 64

H. VON RIEDEMANN,  
*St. Moritz, March 9th, 1938.*

*Meeting with Geheimrat Schmitz.*

Mr. FRANK A. HOWARD,

*Thames House, Millbank, London S. W. 1.*

DEAR MR. HOWARD: I only received your letter dated Berlin, 4th March, to-day, since, as I see from the envelope, it was only mailed on the 7th.

As you say in your letter I am in receipt of the memorandum Guy wrote and I take it for granted that you have got a copy of same. [So far as I can see, all that we can do is to tell Schmitz that under the conditions existing in the States Mr. Teagle cannot remain on the Board of the American I. G. Isn't that the long and the short of it? To tell you the truth, I don't quite see why we should have to have a long pow-wow with Schmitz and why Mr. Teagle could not simply write him a letter expressing his regret and announcing his resignation? That would not only be the simplest, but might be the best. Surely what more can we do with Schmitz? If there is anything in the situation which would necessitate another course, then certainly I don't see it.]

If you still feel that I must see Schmitz, then please advise me and also please advise me whether I can inform Schmitz of Wellman's memorandum. If you don't know whether I could do this, then I think it might be well that you ask Guy. Of course I will be glad to see you if a verbal discussion with Schmitz is advisable. That goes without saying.

With kindest regards, I am,

Yours very truly,

H. RIEDEMANN.

[Hand written:] If Schmitz must be seen then I think you ought to be present, don't you?

ARNOLD EXHIBIT NO. 65

TILAMES HOUSE,  
London, 11th March, 1938.

Mr. W. C. TEAGLE,

30 Rockefeller Plaza, New York.

DEAR MR. TEAGLE: I saw Dr. Schmitz several times in Berlin, and talked both to him and to Dr. von Knieriem about the developments in connection with the American-I. G. Company. Dr. Schmitz will be in Basel on Sunday, March 20th, which is the same day Heinrich expects to come through Basel on his way back to London. I enclose copy of letter which I received from Heinrich which will be self-explanatory. I have no copy of the memorandum which Guy wrote.

The questions to be answered are apparently:

- (1) Should Heinrich see Dr. Schmitz?
- (2) Can Dr. Schmitz be given a copy of Guy's memorandum?
- (3) Would it be in order for you to resign immediately as Heinrich suggests?

My comments on these three questions are as follows:

I have never seen the finished draft of the memorandum referred to, but from a hasty verbal summary of the original draft, given to me by Frank Mott the day I sailed, I doubt if there is anything in the memorandum which will help Heinrich in persuading Dr. Schmitz to agree voluntarily to your resigning from the Board. Dr. Schmitz is entirely willing to see Heinrich, and will do everything possible to make their meeting convenient, but I know that like Heinrich himself, Dr. Schmitz is not quite clear what advantage could come from talking over the matter. He knows what happened in Washington, and despite everything he still believes that his course has been the best course that could be taken and he wishes to continue it. He has pointed out to me, however, reasons why he believes there will be no recurrence of any of the past troubles in connection with the American-I. G. Company. Unfortunately, these are matters which I can only talk about when I see you—this at Dr. Schmitz's specific request. He will certainly make the same points to Heinrich at their meeting, but it seems to me that you yourself are the only one who can pass on the importance of these considerations as applied to the future of the American-I. G. Company and your relations with them.

My own conclusion on the three questions is that it would be desirable, if convenient, for Heinrich and Dr. Schmitz to meet in Basel, and for Heinrich to give Dr. Schmitz a copy of the memorandum or read it to him. I would not expect that anything would result from such a meeting, however, except to further impress upon Schmitz the seriousness with which you regard the situation and your determination to have something done about it. Dr. von Knieriem would have been helpful, but unfortunately he is away on a Mediterranean cruise, and will not be available until the end of the month. I think it quite probable that you will eventually have to do exactly what Heinrich recommends, that is, merely resign and let Dr. Schmitz find some other solution of his problem, but I do not believe that it would be natural or proper for you to do this until I have returned and had an opportunity of passing on to you what Dr. Schmitz had to say.

I am forwarding copy of this letter to-day to Heinrich at St. Moritz. If Heinrich accepts the suggestion contained in this letter, he will arrange by telephone to meet Dr. Schmitz in either Zurich or Basel on his way back to London on Sunday, March 20th. I could be there, of course, if necessary, but in view of my earlier talks with Dr. Schmitz I do not believe there is anything to be gained by it.

I shall be in London in any case through Friday, March 18th, and if you have any instructions for me on receipt of this letter, there will still be time for me to arrange to meet Heinrich and Dr. Schmitz in Basel or Zurich.

With best regards,

Very truly yours,

FRANK A. HOWARD.

FAH/WAG.

Enclosure.

## ARNOLD EXHIBIT No. 66

AMERICAN I. G. CHEMICAL CORPORATION,  
New York, April 4, 1939.

Mr. WALTER C. TEAGLE,  
30 Rockefeller Plaza,  
New York City.

DEAR MR. TEAGLE: Your resignation as a director of American I. G. Chemical Corporation dated November 18, 1938 has been submitted to the meeting of the Board of Directors held on March 15, 1939 and was accepted as of December 31, 1938.

May I express to you on behalf of my associates the regret over your decision. With best wishes and kindest regards, I remain, dear Mr. Teagle,  
Yours sincerely,

D. A. SCHMITZ, *President.*

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ARNOLD EXHIBIT No. 67

OCTOBER 10, 1939.

Re: Japan  
Mr. H. WILKINSON,  
Asiatic Petroleum Company,  
50 West 50th Street, New York City.

DEAR WILKIE: Referring to our conversation of September 26th, I enclose a memorandum which represents the combined views of Socony-Vacuum, Standard of New Jersey, as well as Standard-Vacuum.

Sincerely yours,

[Signed] P. W. PARKER.

PWP:H  
Enclosure  
CC: Mr. Orville Harden,  
Mr. H. F. Sheets.  
Mr. K. F. Coe.

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SEPTEMBER 25, 1939.

MEMORANDUM RE JAPAN

In March 1934 Socony and Jersey Boards both approved of Standard-Vacuum recommendations to enter into formal negotiations for a merger with Mitsui in Japan. This was a step that had been considered by the old Standard of New York interests for some years and has on several previous occasions been informally discussed with Mitsui.

These negotiations were proceeding satisfactorily when the Government announced the Petroleum Control Law which was finally promulgated July 1st, 1934. Even then the negotiations were not discontinued but late in the summer or early fall of 1934 Sir Henri Deterding came to New York and as a result of discussions he had with Standard of New Jersey it was the feeling that all possible resistance should be effected by a united front of Shell and Standard interests to oppose the growing development of nationalism in the petroleum industry and particularly to combat Governmental moves in various countries to construct refineries, the feeling being that if all countries adopted this attitude there was not sufficient capital in the oil companies to finance it. As an outgrowth of this situation it was decided that Standard-Vacuum should withdraw from negotiations with Mitsui, and while it involved considerable embarrassment to do so, it was finally done on the ground that the Government Petroleum Control Law had so changed conditions that it was felt the matter should be held in abeyance.

Messrs. Godber, Walden and Parker then went to Japan in November of 1934 and negotiated continuously with the Japanese Government until the following April. Certain principles were arrived at which enabled us to continue business but the question of the six months' excess storage for emergency stocks was still left unsolved.

The Government continued to press this matter of emergency stocks, emphasizing that Shell and Standard-Vacuum were operating in Japan as law breakers so it was finally agreed that we endeavor to work out jointly a deal whereby Mitsui would construct the storage to provide for both Shell and Standard-Vacuum requirements.

These negotiations brought us along to the summer of 1937 when the Japanese started their war with China. The pressure became increasingly great on the part of the Government but we were successful in maneuvering the negotiations to a point where Mitsui were considering our proposal, when the war started. After that date, whenever the Government brought up the matter, we were in a position to say that we were awaiting a reply from Mitsui. With the uncertainties which Japan faced from that moment, and which have increasingly developed since that time, the Government has never pressed up to comply with this storage provision, and at this particular point the matter rests today—where it did in early July 1937.

While the Government has continued to stress that we and Shell have never complied with the storage law, it has been obvious that they need us, which in our opinion, is the only reason we are still permitted to do business. However, it should be emphasized that they have been constantly working to an objective which will permit them to eliminate imports of finished products without disturbing their petroleum supplies. They have done this by building up their refinery capacity all of which is in the hands of the Japanese; also by synthetic processes so that when they are ready they can refuse any further quotas to Shell and ourselves, always pointing out that we are law breakers. In the writer's opinion, we can expect to see a further substantial cut during 1940, in Shell and our quotas.

A detailed review of our records discloses that on many recurring occasions the opinion within our own group has been that Standard-Vacuum interests would best be served by some association with Mitsui.

A similar issue arose when the Manchukuo Monopoly was declared. So far as Standard-Vacuum interests alone were concerned, the opinion was that their interests would have been best served by some arrangement to continue business with the Monopoly. However, in view of Jersey's strong feelings with respect to monopolies and their united policy on this issue with Shell, we again deferred to Shell's wishes and withdrew from that market and refrained from any dealings with the Monopoly.

When the Control Law went into effect the Shell and Standard-Vacuum combined share of the trade was:

	Bbbs. 42's	Combined % Total Trade
1933 Gasoline.....	3,040,000	53.3
1934 Kerosene.....	940,000	51.6
" Hvy. Oil (excl. M. B. K.).....	3,512,000	48.1
" " " (incl. " ).....	4,352,000	59.6

Based on twice the quotas for the Last Half of 1939, the position is:

	Bbbs. 42's	Combined % Total Trade
Gasoline.....	2,035,000	36.06
Kerosene.....	565,000	31.59
Hvy. Oil (excl. M. B. K.).....	2,350,000	39.40
" " " (incl. " ).....	3,530,000	45.66

The above represents the following percentage decline:

Gasoline.....	17.2
Kerosene.....	20.0
Hvy. Oil (excl. M. B. K.).....	17.7
" " " (incl. " ).....	13.9

The political developments in the East, backed up by the actual results as demonstrated by above figures, undoubtedly had an effect upon Shell's local representatives in Japan. When we got the first intimation of the Government's next contemplated step to further rationalize industry in late June 1939 by compulsory pooling of all Japanese companies into one general sales company, and the formation of all distributors into another company, the Shell representative then joined ours in a joint recommendation to approach Mitsui to

work out some arrangement which would strengthen our fast dwindling position and salvage what was possible of the combined interests in Japan.

The matter was discussed in London with Shell at that time, who were just as adamant as ever against any association with Japanese capital.

While considerable difference of opinion existed in our own group originally on this question, it is fair to state that the developments of the last year, and particularly recent months, has brought about a practically uniform opinion that any future which Standard-Vacuum may have in Japan would be materially strengthened and our life prolonged by a mutually satisfactory association with Japanese capital.

During the summer this question has been discussed with representatives of other foreign firms, such as General Motors, General Electric, and S. K. F. (Swedish), all of whom have been unanimous in confirming the view that foreign business in the future in Japan would be on a much sounder basis in association with Japanese capital.

The purpose of this memorandum is to have clearly recorded the views of our group, as we feel the record shows we have consistently deferred to the wishes of our Shell associates against increasing evidence that we were acting contrary to our own best interests so far as the principle involved of protecting our investments was concerned.

Our group feel this more strongly today than at any time in the past. In our best judgment, even at this late date, the best protection of our own interests indicates that we should at least explore the possibilities and if promising, endeavor to make the best deal we can with Mitsui to salvage what is possible. However, as purely a matter of expediency and fully realizing the present political situation in which our Shell friends find themselves, we are again willing to defer to their wishes and postpone any approach to Mitsui for the time being. We feel that our Shell friends should thoroughly appreciate that we are acting contrary to our own best judgment of the sound business action we should take, and therefore the question is one that we will feel free to re-open for discussion at any time in the future.

PWP:M

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ARNOLD EXHIBIT No. 68

THAMES HOUSE,

Millbank, London, P. H. L. 1st June, 1939.

I. H. P. Agreements—Royalty Payments to S. I. G.—Japan Gasoline K. K.

MR. ROSS H. DICKSON,

26 Broadway,

New York

DEAR MR. DICKSON: I received your cable of May 25th regarding the \$15,000 cheque remitted by I. H. E. C. to Standard-I. G. and confirm having cabled you today as per confirmation attached. The circumstances surrounding this transaction are the following:

A license was granted to Japan Gasoline K. K. by Universal Oil Products Company and I. H. P. The license covered both hydrogenation and polymerization, and U. O. P. and I. H. P. agreed that they would split the total royalties received fifty/fifty. Japan Gasoline K. K. made a payment on account of the license granted by both parties of \$300,000, for which they had the right to manufacture 300 barrels per day of iso-octane. They have an option, however, which incidentally expires on July 1, 1939, on payment of a total of \$600,000, i. e. \$300,000 over and above the \$300,000 which has already been paid, to receive an exclusive license under the rights of both of those parties for Japan. I. H. P. duly received \$150,000 as its portion of the \$300,000 payment made. The question then arose with I. G. as to what portion of this \$150,000 should be allocated to polymerization and which part to hydrogenation. I. G. is entitled to no portion of the royalties allocated to polymerization. After much discussion between Dr. Ringer of the I. G. and Mr. Nienwehnkis of the I. H. P.—most of these discussions I understand took place in New York—it was agreed that the royalties should be divided fifty/fifty, i. e. \$75,000 allocated to polymerization and \$75,000 to hydrogenation. The payment of \$15,000 which was transmitted with I. H. P.'s letter of May 11th represented 20% of the \$75,000 allocated to hydrogenation. I do not know to what extent Dr. Ringer discussed this arrangement with the people in Dr. Hochschwender's office, but Dr. Ringer is fully familiar with the whole picture and has agreed to this arrangement.

I think that Mr. Loofbrourow is fully familiar with this whole picture, and I thought that Mr. Russell was also. I know that Mr. Howard is familiar with the discussions which took place between Mr. Nieuwehnkis and Dr. Ringer.

Sincerely yours,

W. R. CARLISLE.  
W. R. Carlisle.

ARNOLD EXHIBIT NO. 69

AUGUST 1, 1939.

MEMORANDUM - DESIGN OF CATALYTIC CRACKING PLANT FOR D. A. P. G.

DD-136.29

A meeting was held on July 25, 1939, with Messrs. Bogner, Dewdney, Forrest, and Murphree in order to discuss the method of handling the D. A. P. G. catalytic cracking plant. Mr. Bogner advised that the D. A. P. G. will own and erect the plant. The process design will be made in this country and detailed by Uhde, which is a firm I. G. has formed to carry out construction. The I. G. will license the plant to D. A. P. G. The royalty for this licensing has not been determined as yet.

Economic studies carried out in the early stages of this development indicated that catalytic cracking would be a cheaper method than hydrogenation. Moreover, it was felt that this plant would supply the Jersey interests with some commercial experience at an early date. The I. G. authorities were interested in having information on this new process. For this reason the German Government was approached on the basis of using catalytic cracking and approval obtained. Since that time the costs for catalytic cracking have been shown to be higher and there is some question as to whether this method is still as attractive. It was pointed out in the meeting that this plant is based on fixed catalyst operation which will not be used in this country and Jersey therefore does not gain any commercial experience on the type of process we propose to use. Mr. Dewdney and Mr. Bogner felt, however, that the German authorities would not wish to go ahead on the powdered catalyst type of operation since no 100 B/D experience was available and, moreover, would not change over to hydrogenation inasmuch as they were desirous of obtaining information on catalytic cracking. The most serious objection to use of hydrogenation is that during time of emergency when the plant would be most urgently needed, domestic crude must be processed. Hydrogenation will make only 68 octane number on this crude whereas catalytic cracking would operate satisfactorily as on the Venezuelan stocks normally charged. It was also pointed out that this project has suffered so much delay that the Government might cancel the project if they were approached with another revision.

It was therefore decided to proceed with the fixed catalyst plant. Mr. Murphree felt that use of the tubular type reactor used with the salt bath should not be considered inasmuch as we have no experience on use of heat transfer mediums of this kind. The greatest obstacle to design of this plant at this time is in lack of data on regeneration time required for a given cracking period. Operations conducted to date on the 100 B/D fixed plant at Baton Rouge have concentrated on cracking and no thorough study has been made of regeneration. None of the regeneration times on the 100 B/D plant have been down to the design figure of  $1\frac{1}{2}$  times as long as the cracking period. It was agreed that the Development Division would study the data available on regeneration of synthetic catalyst in small units and in the 100 B/D plant and decide whether experimental work was required and if so whether it should be conducted in a small unit or in the 100 B/D plant.

The I. G. gentlemen plan to leave New York on August 4th and will spend the following week in the south and Indiana observing various operations. The following week, beginning August 14, they will return to New York for discussions on the detailed design of the plant. Subsequently one representative will remain in this country until the process design is completed. A flowsheet will be prepared on the yields and operating conditions by Kellogg which will be checked by the Development Company. This should be available for discussions during the week of August 14. The process design work will be carried out by Kellogg with detailed check by the Development Company. This checking will be confined to the catalytic cracking equipment proper in the plant. We advised that Development would not be able to supply an engineer to assist in the design of

the unit until after August 14, although we would be able to render assistance in checking the process conditions prior to that time.

There was some discussion as to what information should be supplied by Kellogg to Uhde. The details of this were left open for future study, but in general it was agreed that a process flowsheet should be supplied together with sketches on the novel pieces of equipment, such as the reactor and waste heat boiler. It will also be necessary to supply certain information on line sizes, etc. in order to obtain low pressure drop in the regeneration gas circuit. It was also agreed that the final drawings and specifications on certain equipment as prepared by Uhde would be referred back to Kellogg and Jersey for recheck. We agreed that we would advise the D. A. P. G. which items should be included in this category.

The design of the catalytic unit will include the vaporizing coil and flash drum and will assume that the oil is supplied cold. Handling of the products will include a fractionating tower, separator on the tower overhead, and compressor for the separator gas. The capacity of the plant will be as shown on the flowsheet prepared by Mr. Dewdney, which is attached to the memorandum covering the meeting with the I. G. and D. A. P. G. representatives on July 28. This capacity is roughly 4,800 B/CD to the reactor. This flowsheet shows certain figures for optional operation on Mexican crude, which it was agreed should be disregarded.

The memorandum covering the general meeting on July 28 contains additional detailed information covering the operating conditions, catalyst and feed stock for the design of this unit.

E. J. GOHR.

EJG: HCW

cc: Mr. E. V. Murphree, Mr. D. A. C. Dewdney, Mr. Bogner, Mr. Campbell, Mr. Hemminger.

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ARNOLD EXHIBIT No. 70

STANDARD OIL DEVELOPMENT COMPANY,  
26 Broadway, New York, August 11, 1939.

Mr. E. V. MURPHREE,  
Building,

DEAR MURPH: Dr. Ringer, Mr. Keith, and I have been having a number of discussions regarding the process design of the D. A. P. G. catalytic cracking plant. I have assured Dr. Ringer that we are not only willing but anxious to do everything we can to assist the Kellogg and I. G. gentlemen in preparing the process design, and in this connection I have the following recommendations to make:

1. That you assign one of our process engineers who is familiar with fixed catalyst process design work to sit in with the Kellogg and I. G. gentlemen and give them his best advice on process design matters.

2. That this process design man send to you and to me each week a brief weekly letter summarizing the status of the process design work and pointing out any features which appear doubtful to him. It seems to me very important that both you and I keep as close to the progress of this process design work as our other duties will permit.

Very truly yours,

R. P. RUSSELL.

RPR: BK

CC: Mr. E. J. Gohr, Dr. F. Ringer.

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ARNOLD EXHIBIT No. 71

1st August 1939.

LD-2287  
D. A. P. G. Project.

Mr. D. L. HARPER,  
New York.

DEAR MR. HARPER: I am attaching a copy of a file note of July 31st covering a telephone conversation with Mr. Voigtlaender of the D. A. P. G. You will



note that the question of a site for this plant which has been the subject of considerable controversy inside of Germany has now been settled by the authorities and it will be possible now to carry out active design and engineering work on the whole project.

In a recent letter (LD-2059 of the 23rd June) we outlined the steps that were being taken for the process engineering work on the catalytic cracking portion of the plant. This engineering work has just been started in New York. The engineering work on the hydrogenation plant will be handled in Germany by the agency which has been set up to handle all hydro plants, namely the Mineralöl Baugesellschaft. This plant involves the production of 150,000 tons of aviation gasoline by a combination of catalytic cracking and hydrogenation, plus the possible production of 105,000 tons of motor gasoline by hydrogenation of heavy residues in a so-called "reserve plant" to be financed by the Government.

You will recall that we have had an exchange of correspondence regarding the feed stock for the combined catalytic cracking and hydro plants and, as indicated in our last letter to you, we hope that D. A. P. G. will be able to get approval for a scheme which will involve the importation of large crude oil as the main feed stock.

Very truly yours,

W. C. ASBURY.

WCA/S.

Enclosure (1)

CC: Mr. F. A. Howard, Dr. C. E. Lanning, Mr. R. P. Russell, Mr. E. E. Soubry.

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ARNOLD EXHIBIT No. 72

Miss K: Returning original letter. Have made copy for our file and arranged for billing of charges. See letter to Green attached.

H. G. MEYER.

30 ROCKEFELLER PLAZA, NEW YORK, *September 13, 1939.*

Personal and Confidential

Mr. R. P. RUSSELL,

26 Broadway,

New York, N. Y.

DEAR MR. RUSSELL: Replying to your favor of August 24th, I agree with you that Jersey absorb the \$12,000 expense in connection with the process design for the catalytic cracking section of the D. A. P. G. plant, and would suggest this item be charged against "S. O. Co. of N. J. General Division General Expense." This is in accordance with the recommendation of Mr. T. C. McCobb.

Very truly yours,

D. L. HARPER.

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ARNOLD EXHIBIT No. 73

JULY 19, 1939.

Mr. F. A. HOWARD: I agree fully with Bill's point and I hope you can prevail upon Dr. Ringer to accept it.

R. P. RUSSELL.

THAMES HOUSE,

Millbank London, S. W. 1, 7th July, 1939.

D. A. P. G. Catalytic Cracking Plant.

Mr. R. P. RUSSELL,

New York.

DEAR BOB: I would like to call to your attention one point that may affect the general design of the D. A. P. G. catalytic cracking plant. Under the C. R. A. Agreement (Article XII of the Draft of May 6th, 1939) "each oil company party reserves the right to operate royalty-free under its own patent rights and is hereby granted the right to operate royalty-free under the patent rights developed by the joint research provided for in Article XIII." I have been working on this basis and have been assuming that only if D. A. P. G. has to use rights

originating from the I. G. would D. A. P. G. have to pay royalties to I. G. for the catalytic cracking operation.

During a telephone conversation with Dr. Carlisle to-day, Dr. Ringér said that although the oil company parties had these rights they would only be entitled to use their own experience but not any experience that may have come from the I. G. He stated furthermore that it would be difficult as a result of an exchange of information to draw the line as to just what experience had come from I. G. and what experience had come from the oil companies. He said that this point had never been settled but had been discussed with you and Mr. Howard in New York. This point was entirely new to Mr. Carlisle and myself.

It seems to me that with the drawing up of the design by the Kellogg Company in New York for the D. A. P. G. plant there is very little chance that any experience coming from the I. G. will be used. This is due to the fact that Jersey had worked out a practically complete process for fixed bed catalyst operation before I. G. exchanged any experience with us. Therefore, up to this point I would say that D. A. P. G. would not have to pay any royalties to I. G. However, later, if the design is perfected in Germany and if the I. G. should make any real contributions as a result of experimental work or new catalysts they may be in a position to claim a royalty. I think D. A. P. G. and we have no objection to paying royalties if the I. G. did make some real contribution. However, I feel that lacking some definitely determinable contribution of this type we should take the position that the technique and experience incorporated in D. A. P. G.'s first plant originated with the Jersey Company and that D. A. P. G. is not liable to royalties from I. G. unless it proves as a result of a careful study of the patent situation that the design does require the use of some of the I. G. patents.

Since you and Mr. Howard have had the discussions on this point with Dr. Ringér, we would greatly appreciate advice from you on this point at your earliest opportunity. I feel that Mr. Dewdney and Mr. Bogner must have your advice on this point before the design work at Kellogg starts so that they will know how far to go in accepting any suggestions that the I. G. members of the delegation may put forward.

With best regards.

Very truly yours,

W. C. ASBURY.

Copy: Mr. F. A. Howard.

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#### ARNOLD EXHIBIT No. 74

AGREEMENT made in the City of New York in the United States of America this 27th day of September 1927, between I. G. Farbenindustrie Aktiengesellschaft (hereinafter called the German Company) and the Standard Oil Company, a New Jersey corporation (hereinafter called the Standard Company);

WHEREAS the German Company has developed a process (hereinafter referred to as "said process") for which it has obtained patents and/or filed and will file applications for patents in the United States of America, relating to treating crude petroleum and/or products made from or contained in crude petroleum, by pressure of ten or more atmospheres together with hydrogen and catalyzers, so that large proportions of those marketable products of petroleum of value higher than the starting material, which are now commonly produced by present methods of refining, such as distillation, cracking, acid treatment, and filtration may be obtained directly or indirectly; and

WHEREAS the German Company is conducting large-scale experiments involving said process in Germany, and the Standard Company desires to become interested in the use of, and to cooperate in the prompt introduction and extended commercial development of, said process in the United States, as hereinafter defined, it being the intention of the parties not to confine the use of the said process and improvements therein to themselves and their subsidiary companies but also to grant licenses to others on such terms as may be adapted to insure the extended use of said process, and also to provide for the introduction and commercial development in the United States, as hereinafter defined, of certain other patent rights and processes hereinafter referred to; and

WHEREAS it is the intention of the parties that the rights to be granted hereunder and the operations of each party for which it may be obliged to account to the other hereunder shall, unless otherwise specifically expressed, be confined to the United States which, for the purposes of this contract, is defined as the

United States of America, its territories, possessions, and dependencies, as now existing, including the Panama Canal Zone;

Now, THEREFORE it is agreed as follows:

#### ARTICLE I. CONSTRUCTION AND OPERATION OF PLANT; AND JOINT INVENTIONS

A. The German Company agrees that it will continue its large-scale experiments in a plant in Germany at its own expense, to obtain the fullest technical knowledge of the said process (which plant shall be fully open to inspection of representatives designated by the Standard Company so long as the plant is used of said process) and that, as soon as it shall have finished its said large-scale experiments and gained such knowledge, but, in any event, within two years from the date hereof, it will furnish to the Standard Company complete plans and specifications for a plant of a capacity of 40,000 tons of oil to be treated per annum according to said process. In the preparation of the said plans and specifications the German Company will seek the advice of the Standard Company, but the German Company shall have the full right to determine the extent to which such advice shall be followed.

B. The Standard Company agrees that it will give the German Company, upon its request, any technical information which it possesses which will aid the German Company in preparing the said plans and specifications, and upon the receipt of said plans and specifications as above provided, it will promptly, at its own expense, erect a plant in the United States in accordance therewith and of a capacity of 40,000 tons of oil to be treated per annum, such plant to be erected at a place where it can be supplied by the Standard Company with the widest variety of different crude materials, to be specified from time to time by the German Company, so that in the operation of said plant an opinion can be formed as to with what crude materials and with the conversion into what final products the greatest commercial profit can be obtained.

C. The German Company shall conduct the technical management of said plant in the United States and shall itself pay the salaries of the technical managers, until a time to be determined by the German Company but not to exceed four years from beginning of operation.

D. Except with reference to the said salaries, the Standard Company will pay the expenses of operation of said plant in the United States, and the parties agree closely and loyally to cooperate with each other to the end that the operation of said plant shall be successful and that there may be gained from the joint operation a picture of the expenses of the various phases of fabrication under application and nonapplication of said process and a knowledge of the commercial value of the process, as such, as well as in comparison with processes now commonly used. The Standard Company agrees to place the German Company in full possession of such cost data under present conversion methods as may be necessary to arrive at an appropriate joint opinion in this regard.

The Standard Company shall be under no obligation to continue the operation of said process beyond the period during which the German Company conducts the technical management of said plant, as above provided, but may continue such operation, commercially or otherwise, beyond that period if it so desires and as long as it so desires.

If the Standard Company shall discontinue operation of said process in said plant before having placed in operation a commercial plant for carrying out the said process under license from the German Company, then the German Company shall have the right and option, to be exercised by it at any time within six months after such experimental plant shall have ceased to operate, to cancel this agreement. Until this agreement is so cancelled, or is terminated in accordance with its terms, neither party shall make any agreements with others with reference to the development of said process in the United States, as above defined, but licenses may be granted as provided herein.

E. The Standard Company agrees that it will permit inspection of said experimental plant by any person or persons designated by the German Company, and that it will permit inspection by others only in so far as it has reason to believe that no risk will be run thereby of disclosing the process there used. The German Company agrees that it will so designate persons to inspect the plant only in so far as it, likewise, has reason to believe that no risk will be run thereby of disclosing the process.

F. The parties agree that all joint inventions, coming within the scope of this agreement, made by employees (including technical and other managers of

the German Company, as well as the Standard Company) of the said experimental plant, and in which one or more of the inventors is obligated to assign his invention to the German Company, and one or more to the Standard Company shall, as between the parties hereto, be treated as follows:

1. All patents and patent rights of the United States, based upon such inventions, shall be assigned to the Standard Company;

2. All other patents and patent rights shall be assigned to the German Company.

#### ARTICLE II. METHODS OF EXPLOITATION

A. Each party agrees to give to the other the benefit of its experience and knowledge, technical and commercial, past and future, useful in the development and exploitation of the inventions of any and all patents coming under Clause C of this Article II (but no license is thereby to be implied), and each will use all reasonable efforts to keep secret the technical communications that may be made by each to the other under this agreement, and shall cooperate to obtain the maximum return from the results of their work hereunder, and shall loyally aid each other in all respects in said development and exploitation and in obtaining proper patent protection in the United States and in the conduct of patent litigation in which either may be involved in the United States. Such cooperation shall include the granting of licenses under United States Patents and such other actions as the parties may agree upon subject to the provisions of Clause B of this Article II.

B. As to the method of procedure in the exploitation field and as to whether and in what manner licenses are to be granted under the patents of each of the parties, and as to the terms of such licenses, the parties agree that they will in each instance discuss such questions with each other before either party shall have the right to act. If in any case the parties shall not be able to agree on the point under discussion, then the party which controls the patent rights for the particular apparatus, process, or product in question shall have free liberty of action, subject, however, to accounting to the other for the considerations received from the granting of licenses as hereinafter provided.

C. The patents of the German Company and of the Standard Company, respectively, within the scope of this agreement are, subject to the limitations expressed in Clause E of this Article II, as follows:

1. All patents and rights under patents of the United States which each now owns or controls or may hereafter own or control (in the sense of having the power to grant licenses without securing the consent of others) relating to the said process, as defined in the first paragraph of the preamble hereof, but only to the extent of applicability thereto, and

2. All patents and rights under patents of the United States (other than those covered by next preceding paragraph 1, and other than patents now issued or patents to be issued on applications pending on the date of this agreement and owned by one of the parties) which each may in the future own or control, in the sense above defined, and which are applicable, and only to the extent of such applicability, in the treatment of crude petroleum and/or products made from or contained in crude petroleum, to produce the marketable products now commonly and generally produced from such oils by the present methods of refining; for instance, distillation, cracking, acid treatment and filtration, not including specialty products or byproducts of petroleum refining not generally or commonly produced by the oil industry as a whole.

D. The parties will keep each other informed concerning new processes, experiences, and patents that come under their control and fall within the scope of this agreement.

E. The above-mentioned limitations of Clause C of this Article II are as follows:

(a) To the extent that any process, technical advance, or patent may also be applicable for purposes other than the treatment of crude petroleum and/or products thereof to produce the products now generally and commonly produced from such oils by the present methods of refining, their use for such other purposes shall not fall within the scope of this agreement.

(b) In the event that either of the parties hereafter acquires by purchase an invention or patent or rights under patents falling within the scope of this agreement, such party shall inform the other party of the acquisition and of the consideration given therefor, and such other party shall thereupon elect within a reasonable time either to pay its equitable share (having regard to

territories covered and fields of technical application) of the cost of acquisition (in which event the acquired invention, patent, or rights under patents shall come within this agreement) or to decline participation in the purchase, in which latter event the acquired invention, patent, or rights under patents shall be and remain outside of the scope of this agreement. If no election is made within 90 days after information as to the acquisition and consideration has been received by the other party, the acquiring party shall be entitled to consider that the other party has declined participation.

(c) The German Company has heretofore entered into two agreements with other parties which provide for the introduction and commercial development in the United States of certain products enumerated in said agreements and the present and future patents and processes therefor (a list of said products as defined in said agreements being identified and delivered to the Standard Company) and it is agreed that the obligations of the German Company under the present contract shall be considered to be subordinate to its obligations heretofore assumed under such other contracts, insofar as there may be any conflict between them; and the German Company is not to account to the Standard Company with reference to receipts and benefits under said contracts.

(d) The German Company recognizes that the Standard Company has heretofore granted and agree to grant various licenses under United States Patents for a certain cracking process known as the Tube-and-Tank Process to others, copies of which have been delivered to the German Company, and it is agreed that the obligations of the Standard Company under the present contract shall be considered to be subordinate to its obligations heretofore assumed under such other contracts, insofar as there may be any conflict between them; and the Standard Company is not to account to the German Company with reference to receipts and benefits under said contracts.

The Standard Company may, without prior conferences with and without accounting to the German Company, grant to others nonexclusive licenses and/or releases under its patents defined in Clause C-2 of this Article II, in exchange for nonexclusive licenses and/or releases from others to it, but only for the bona fide purpose of preventing burdensome litigation on inventions of minor importance in the matters within the scope of this agreement, and in cases where the license has no clearly defined established monetary value. If, however, the licenses and/or releases granted by the Standard Company relate to any of its patents included within this agreement having a then established monetary value (as, for instance, by licenses having previously or contemporaneously been granted under them to others for cash or its equivalent) or the Standard Company receives from the licensees, in accordance with the provisions of any such licenses, a consideration by way of cash, or the right to grant further licenses to others, then it shall account to the German Company for such value and additional things as provided in Article IV D hereof.

The Standard Company, in granting future licenses under its patent rights not included in Clause C of this Article II, shall exclude any of its patent rights relating to the said process defined in the preamble hereof, and it shall, if practicable, keep separate also any of its other patent rights within said Clause C, so as not to confuse the same with those which do come within that Clause. If this is found impracticable, and if patent rights within said Clause C-2, which at the time appear to be of minor importance and not of definitely ascertainable value in themselves, are embraced in a license primarily relating to patent rights outside of said Clause, the Standard Company need not account to the German Company. Similarly if the Standard Company grants licenses primarily relating to its patent rights within said Clause C-2, but includes patent rights (not within said Clause and appearing at the time to be of minor importance and not of definitely ascertainable value in themselves) as may be necessary for the protection of the licensee, the Standard Company shall not be entitled to any separate consideration for itself because of such inclusion. If the judgment of the Standard Company as to such relative importance shall later appear to have been wrong, neither party shall have the right to ask for a division or redivision of the moneys theretofore received by the other.

The Standard Company shall promptly give to the German Company from time to time notice of any licenses or releases which it grants under this paragraph (d).

F. The products produced within the United States, as above defined, under licenses granted hereunder by each party to the other, or by the parties to

others, shall be entirely free (as between the parties hereto) to enter into foreign commerce and each party agrees that it will not attempt to prevent or restrict such entry into foreign countries by virtue of its ownership of foreign patent rights.

#### ARTICLE III. LICENSES AS BETWEEN PARTIES HERETO

A. Subject to the foregoing and to the accounting between the parties, as hereinafter provided, the German Company hereby grants and agrees to grant to the Standard Company a nonexclusive license to construct and operate plants in the United States, as above defined, and sell the products of the said plants, such license being granted and agreed to be granted under the patents of the German Company defined in Clause C of foregoing Article II, and for the lives of said patents granted and to be granted.

B. Subject to the foregoing provisions of Article II and to the accounting between the parties as hereinafter provided, in the event that the German Company, directly or through subsidiary companies, shall engage in any business in the United States, as above defined, utilizing any of its patent rights defined in Clause C of Article II, the Standard Company agrees that it will upon request grant to such company a nonexclusive license, under such of the United States patents of the Standard Company defined in Clause C of Article II, as may be required for the conduct of such business and for the lives of said patents granted and to be granted and upon terms as favorable as those granted by the Standard Company to others.

C. The Standard Company hereby grants and agrees to grant to the German Company a nonexclusive license under all patents and rights under patents for Germany which it now owns or controls, or may hereafter own or control (in the sense of having the power to grant licenses without the consent of others), this license to be free of charges and to cover all territory to which German patents now apply, and to extend for the life of this agreement, but to be limited to patents and rights under patents applicable to the said process describe in the preamble hereof, and to the extent of such applicability only.

#### ARTICLE IV. ACCOUNTING BETWEEN THE PARTIES

A. The Standard Company shall not be obliged to make any royalty or other payment to the German Company with reference to the construction and operation in the United States of the plant described in Article I hereof, irrespective of the capacity to which such plant may be developed without enlargement thereof.

If and when the Standard Company enlarges said plant and operates such enlarged plant, or operates other plants in the United States, embodying or utilizing the inventions covered by any of the United States patents of the German Company specified in Clause C of Article II, it shall pay to the German Company royalties on the increased production due to the enlargement of said plant and with reference to said other plants, as follows:

(1) Until licenses have been granted to others, the royalty to be paid by the Standard Company shall be one cent per gallon of finished marketable gasoline and/or finished marketable lubricating oil, or, in the alternative, it shall be ten cents per barrel (forty-two gallons) of oil fed to the licensed operation, whichever of these two sums shall be the higher. Accounting shall be made and royalties paid semi-annually. If at any time after two years from the starting of operations, with reference to which royalty is payable, either party considers that the rate of royalty here fixed is inequitable, it may take the matter up with the other party who hereby agrees to discuss the matter fully and frankly with a view of arriving at a rate of royalty which both parties may agree to be equitable, if it is then agreed that some revision would be fair.

(2) After a license shall have been granted to another, the license to the Standard Company shall not be upon terms more favorable than the most favorable license granted to others, but it shall be entitled to hold the license at all times upon terms as favorable as those in force for any other licensee, within the fields of the patents within this agreement, always having regard to any difference which may exist due to territorial or other natural conditions.

When, by the granting of licenses to others, the rate of royalty payable by the Standard Company shall have been determined, the said rate of royalty shall be made retroactive to apply to any similar licensed operations of the

Standard Company which have been carried on within the twelve months next preceding the date at which the license granted to said other licensee shall actually be put into effect, and the parties shall make settlement at once upon this basis for the said preceding twelve months period.

B. The Standard Company may, without restriction and without accounting to the German Company, in its own plants use any process and make and use any machine or apparatus, and make, use, and sell any product, covered by any of its patents included within Clause C of Article II hereof, but no license under patents of the German Company is hereby implied.

C. In the event that the German Company directly or through subsidiaries engages in business in the United States, as above defined, utilizing any of its patent rights defined in Clause C of Article II, it shall, with reference to its utilization of such patent rights in said plant or plants, account in accordance with Clause D of this Article IV, as though such business were being conducted by others under said patent rights on terms of royalty at the lowest rate at which the German Company is at the time and from time to time receiving royalties from others in the United States under licenses under the same patents; until such licenses have been granted to others, the payments to be accounted for by the German Company shall be those agreed upon between the parties, or failing such agreement, shall be determined by majority vote of three arbitrators, one to be appointed by each party and the third to be designated by the two so appointed.

If, in such plants, there are utilized inventions of patents of the Standard Company defined in Clause C of Article II, the German Company shall pay to the Standard Company a royalty at the lowest rate which the Standard Company is at the time and from time to time receiving royalties from others in the United States under licenses under the same patents: until such licenses have been granted to others, the royalty to be paid by the German Company shall be that agreed upon between the parties, or failing such agreement, shall be determined by arbitration as above provided.

D. All payments received by either party (including amounts to be accounted for under preceding Clause C of this Article IV) under the exercise of license rights, as herein provided, shall be shared equally between the parties hereto, provided, however, that the Standard Company shall not be required to divide with the German Company any royalties or other payments or benefits which may be received by it under agreements now in effect between the Standard Company and other parties, and which include licenses under any of the patent rights of the Standard Company defined in Clause C of Article II hereof, or under any revisions of said agreements which do not enlarge the licensee's right under patents with reference to which licenses are granted by this agreement. The said accounting shall be made semiannually.

#### ARTICLE V. ASSIGNABILITY, SUCCESSORS AND SUBSIDIARIES

(a) The right or interest of each party in this agreement and in any profits arising thereunder is recognized as entirely personal and not transferable, in whole or in part, except as a part of the transfer of substantially the entire business of the party making such transfer and except as provided in the other paragraphs of this Article V. If any transfer, whether voluntary or involuntary, is made contrary to the provisions hereof, this agreement may be terminated at the option of the other party. Nothing herein contained shall prevent either party from making agreements for the pooling of profits from its general business, including profits derived under this agreement, but no such pooling shall act to reduce the payments to be made hereunder.

(b) Each party may transfer all of its patents, processes, and rights under this agreement to any company controlled by it provided that such company, also, shall agree to be bound by the provisions of this agreement, and the party so transferring shall guarantee performance by such transferee and shall agree to assign and deliver to such transferee its future technical information, patents, rights, and inventions for the United States within the scope of this agreement.

(c) This agreement shall be binding upon and shall inure to the benefit of the parties hereto (and the successors of substantially their entire businesses, respectively) and all subsidiary corporations which are in effect the sole property of one of the parties. Such corporations shall be deemed to be, for the purposes of this agreement and as between the parties hereto, merely departments of the party of whom they are in effect the sole property.

(d) Subsidiary corporations not in effect the sole property of one of the parties shall, as between the parties hereto, have the option of ratifying this agreement within three months of its date, or within three months after the subsidiary relationship is established, whichever is the later, and agreeing to consider themselves, for the purpose of this agreement, as mere departments of the party to whom they are subsidiary, or of remaining strangers to the agreement in all respects.

"Subsidiaries" as used herein shall include, among others, corporations of which more than 50% of the voting stock is owned by one of the parties. A subsidiary of any subsidiary of a party shall be considered a subsidiary of the party, and the same shall be true of a subsidiary of a subsidiary to any degree.

Each party will advise the other of each ratification of this agreement by a subsidiary.

#### ARTICLE VI. DURATION

This agreement shall remain in force until terminated by two years written notice served by either party upon the other, but no such notice shall be served earlier than September 15, 1950. The licenses which are or may be granted by or in accordance with this agreement shall continue in force, in accordance with their terms, even though this agreement may have terminated; and the payments to be received under such licenses shall continue to be divided in accordance with Clause D of Article IV hereof.

In witness whereof the parties hereto have caused this instrument to be executed by their proper officers thereunto duly authorized as of the day and year first above written.

J. G. FARBENINDUSTRIE AKTIENGESellschaft,  
H. SCHMIDTZ VON KNIERHEM.  
STANDARD OIL COMPANY,  
W. C. TEAGLE.

Attested by: C. A. WHITE.

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ARNOLD EXHIBIT No. 75

26 BROADWAY, NEW YORK, *March 29th, 1935.*

MR. W. C. TEAGLE,  
MR. W. S. FARISH.

GENTLEMEN: Referring to the enclosed memo, it might be well to remember that a certain part of Washington officialdom at least, including the Army Air Corps, has always looked on us as more of an international company than an American company, and this attitude was quite frankly stated by Major Howard in his first talks with Mr. Russell.

Very truly yours,

FRANK A. HOWARD.

FAH:CFG.  
Encl.

---

Confidential.

MEMO FOR MESSRS. TEAGLE AND FARISH.

During the week of March 18th we received word informally that the Army Air Corps would like us to bid on a proposal they were just making for a limited quantity of 100 octane number aviation gasoline, and that they would also be glad of an opportunity to discuss with us, from a technical standpoint, the situation with regard to supplies and quality of improved aviation gasoline. We have always put ourselves entirely at the disposal of the fighting services in matters of this kind. Therefore, Mr. R. P. Russell, Vice President of the Standard Oil Development Company, who is the best qualified man in our organization, spent two days in Washington discussing the whole question of present and probable future availability of improved aviation gasoline. The position, general program, and desires of the Army Air Corps in this matter were covered in full by Major C. W. Howard, who is Assistant to the Chief of Air Corps, and confirmed by General Foulois, Chief of the Air Corps. The technical and research situation in the oil industry in general and especially in our group of companies, and the present and probable future availability of supplies in the United States and foreign countries, was covered without reservations by Mr. Russell. The purport of these discussions was about as follows:



The Army Air Corps is proceeding at once on a limited program of procurement of 100-octane number fuel. The only known means of getting a satisfactory quality of such fuel at the present time is by blending with regular aviation gasoline 50% of iso-octane together with tetraethyl lead in normal amounts. Supplies of iso-octane are at the present time extremely limited. So far as we know the Shell Company and ourselves are the only present suppliers. Our supplies are inadequate for our own commercial needs and we have no desire to quote on Government business in the near future. Nevertheless Mr. Russell agreed to recommend doing everything possible to speed up production and enlarge the supply of iso-octane and to bid on the Air Corps contracts at the earliest practical moment. Mr. Russell has fulfilled this promise under date of March 28, by letter, copy of which is enclosed, and which is now being forwarded to the Co-Ordination Committee for immediate action on the necessary appropriations.

The use of iso-octane for producing improved aviation gasoline and the method of its manufacture are known outside of the United States and it is probable that the air forces of the entire world will be doing experimental work with iso-octane and concentrating their attention on its availability to them.

The difficulty with iso-octane is that the production at the present time is limited to the utilization of the by-product iso-butylene present in gases formed by the cracking process.

The amount available is roughly of the order of  $\frac{1}{4}$  of 1% of the gasoline produced. This small amount is entirely adequate for development work and extensive flight testing. It is even adequate for peacetime military and naval aviation use in a large part of the world at least. It is totally inadequate for any wartime use.

It appears, therefore, that any program of the air forces involving the use of high-powered engines which require 100-octane number fuel must depend upon the oil industry finding some way of producing iso-octane in quantities much larger than are available at the present time, or finding some other method of producing a satisfactory quality 100-octane number fuel.

The first possibility, that is, the production of large quantities of iso-octane, is very unattractive because of the costs, time required, and losses and difficulties which appear to be involved. While synthesis is possible the supplies seem to be too far ahead and too expensive to be of present military importance.

On the second possibility, the prospects seem to be good. We have produced experimentally, by hydrogenation, aviation gasoline of the required characteristics which looks as though it would be satisfactory, although it is too early to make a definite promise. The advantage of this product is that with our 10,000 barrels per day of hydrogenation capacity and with ample quantities of the right quality of feed stock instantly available to us in the United States, we could make the required gasoline from the beginning of hostilities onward at rates much faster than it could possibly be required by our air forces.

Assuming that the present promise will be borne out, it therefore appears that our cooperation with the fighting forces will permit of a practical and satisfactory program for converting our entire fighting aviation equipment over to 100 octane number standard. Roughly this means for the same weight and size the engines would have 25% more power than the engines adapted for the best fuel available today (87 octane number). The transition stage of this development for our fighting forces can be taken care of by iso-octane production and perhaps by various other small scale specialty operations of other suppliers. It seems possible that full peacetime requirements for the United States Army and Navy might also be taken care of in this way if the entire domestic production of iso-octane was reserved for that purpose. This program of change-over could safely be undertaken immediately, because of the availability of the requisite large quantity of fuel which could be produced by hydrogenation in case of war. If we are successful in our present experiments, our Army Air Corps can therefore proceed at once with full confidence on a program of engine improvement based on superior fuels which will put them far ahead of the rest of the world as regards performance of their fighting equipment.

This possibility is, of course, extremely attractive to the Army Air Corps, but there is one difficulty involved which Mr. Russell quite frankly discussed. The hydrogenation development originated in Germany, and through cooperation all around has now passed into the hands of the oil industry of the entire

world, and, to a certain extent, into the hands of the foreign chemical industry as well. There is a full and free exchange of technical information between all of the companies and units involved in the hydrogenation development and this exchange is not only by means of reports but by constant visits of technical men. To cut off these reports and shut our hydrogenation plants against these visitors would be not only a violation of these agreements, which would involve us in many difficulties, but would also be tantamount to a confession that we were engaged in some work of special military value which would mean that the plants would become a focal point for espionage. The costs and difficulties of protecting against leakage of information about large commercial operations under such conditions is hard to estimate. It seems that the only practical way to handle this problem is to avoid carrying out the operation of producing 100 octane number aviation gasoline commercially as long as possible. We would, of course, also have to breach our agreements to render full and complete technical reports to all of the companies associated with us (even to the American companies, for fear of leakage). We should also forfeit the advantage in producing at the least cost the best available gasoline for commercial purposes.

Any program by which the Army Air Corps can obtain their objective of a one or two year start over the rest of the world on this vital matter bristles with difficulties and sacrifices from our standpoint. We will not have to cross the bridge finally until our present experiments are completed. When and if we are able to demonstrate that the hydrogenation plants are capable of turning out an aviation product which with the usual quantity of lead can be brought up to 100 octane number, we shall be faced with the situation mentioned above. To meet the very proper desires of the Air Corps as expressed to us we shall have to violate our agreements and perhaps forfeit the confidence of our associates, both American and foreign, and beyond this we shall either have to avoid any commercial use of the new method or run the very grave risk of finding that our efforts at secrecy have been abortive.

FAH:CFG  
3/29/35

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ARNOLD EXHIBIT No. 76

EXTRACT FROM EXECUTIVE COMMITTEE MEMORANDA

Date: February 24, 1941.

Present: W. S. F., W. E. P., E. H., T. C. McC.

"Mr. Howard reported that, in line with Mr. Crampton expressing at lunch the other day the German I. G.'s keen desire to have France included in the area in which hydrogenation patent rights are reserved to them rather than in the area in which hydrogenation rights are reserved to the Hydrogenation Patents Company, he had reviewed the matter further and found this arrangement could be put into effect smoothly because it appears the I. G. already has completed necessary ground work with Standard Francaise des Petroles and the French Government, so that S. F. P. would be in position to look after both Jersey and Shell interests. Although Shell to date has seemed reluctant, or perhaps under pressure of the British Government has been unable, to entertain favorably this proposal to the extent that their interest in International Hydro Patents is affected, Mr. Howard said he believed matters had reached the point where they now may yield.

Committee felt it would be advantageous to effect the arrangement suggested by the I. G.

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ARNOLD EXHIBIT No. 77

From: Room No. 2800

Date: March 11, 1941

To: IGESKRETIARIAT, Berlin, Germany.

RINGER AC-20. Standard Catalytic Co. has received paid up royalty on Indiana hydroformer Stop Do you agree my previous suggestion of a first override of five parts out of twenty-five of portion allocable to catalytic refining account, this being an average figure to be substituted for original plan of first override of two parts out of twenty-five for Jersey and six parts out of twenty-five for others Stop Crampton has given no message from you concerning Jasco and hydrogen-

ation Stop Carlisle checked with Hembree several times and always reported that no credits have been received against thirty-seven thousand pounds loan from your other collateral and therefore Hembree unable to make us any credit on this amount which we had advanced to secure release of Jasco shares Stop Carlisle instructed to continue follow-up on this account Stop We have already reimbursed ourselves entirely for this advance by us to Hembree by crediting to this account royalties which we would otherwise have paid to you, we will therefore be able immediately credit to you any sums which may be received from Hembree but not knowing nature of your collateral which they now hold we have no way of determining likelihood of their making us any remittance Stop Have reviewed all other Jasco matters with my people here and believe everything is in order and in accordance with your understanding with above explanation Stop On Jacobson's return next week, hope to telegraph you further confirmation that French hydrogenation matters are in your hands.

FRANK HOWARD.

FAH: M7

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 ARNOLD EXHIBIT No. 78

Urgent!

Powers of Attorney for French and British applications.

I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT.

LUDWIGSHAFEN A. RH. den March 29, 1940.

Unsere Zeichen (bei Antwort anzugeben) Patentabt. We/O.

DEAR SIRS: In a number of cases we have recently proposed to you that we file French and British applications in your name. Similar cases will, no doubt, arise in the future.

According to the French practice it is absolutely necessary that the Power of Attorney is filed together with the application. Accordingly, our French patent agent must have the necessary Power before he can file the case. The situation is somewhat similar in Great Britain.

In view of the long time which the mails between the United States and Europe now take it would therefore greatly facilitate our work on your behalf if you would kindly let us have a number of blank Powers of Attorney for cases to be filed in your name. We are enclosing herewith 20 blank forms of French powers and also 15 forms each for main applications and applications for patents of addition in Great Britain and ask you to sign the documents. You would oblige by returning the papers to us at the earliest possible moment preferably by air mail so as to avoid any further delay in the filing of the French cases.

We appreciate that in general you do not like to give blank Powers of Attorney, but we think that under the present exceptional circumstances it would be the best course. Before transmitting the Powers to our French and British patent agents we would fill in the documents in the same manner as is being done in connection with those cases which we are filing in France and Great Britain in our own name.

Yours truly,

I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT.

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 ARNOLD EXHIBIT No. 79

APRIL 19, 1940.

I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT, A. G.,

LUDWIGSHAFEN, A. RHINE, GERMANY.

GENTLEMEN: Referring to your letter of March 29th, we send you herewith powers of attorney for France and Great Britain, made out by William E. Currie. In explanation of this change from our usual practice of executing powers of attorney, the following is noted:

You will recall that on November 15, 1939, you wrote Mr. Howard, stating that you had recently supplied him with certain assignments executed by I. G. and intended to be used for recording title in Standard-I. G. and Jasco. It is our understanding that Mr. Howard arranged with you that these assignments (which did not contain the name of the assignee) should be completed according to his discretion. It has now been decided that assignments of the Standard-I. G. cases should be made out to William E. Currie, as assignee, in the same manner as indicated on the powers of attorney sent you herewith.

Suitable contract arrangements have been made with William E. Currie, as trustee, and Phillip L. Young, as successor trustee, to preserve the rights of Standard-I. G. in the patents and applications covered by the assignments. Jasco cases will not be assigned to these trustees.

We believe it is undesirable to have any reference to prior contracts appear on these assignments, and it may be that we shall have to ask you for new assignments at some future time. At present we should like to ask you to send us as promptly as you conveniently can do so, a United States assignment covering patents and applications which relate to the rights of Standard-I. G. (this assignment was included in the group mentioned in your letter of November 15, 1939, referred to above).

This assignment should be a duplicate of the one just referred to, except as follows:

1. It should not contain any reference to assignment by virtue of a previous agreement.

2. It should be made out to: WILLIAM E. CURRIE, a citizen of the United States of America, residing at 123 Eakins Road, Manhasset, New York, U. S. A., having an office at 25 Broadway, New York, New York, U. S. A.

3. The following numbers should be omitted from the assignment:

O. Z. 4025	Appln. No. 258152	Patent No. 1,776,875
" 4142	" " 271400	" " 1,929,649
" 4168	" " 280642	" " 1,959,175
" 4328	" " 299124	" " 1,894,116
" 4829	" " 360316	" " 1,910,051
" 5153	" " 397145	" " 1,979,841
" 5381	" " 420624	" " 1,950,811
" 7677	" " 685228	" " 2,093,096

The above numbers were crossed out in the copy of the assignment previously sent us.

4. The following corrections should be made in the new assignment:

Page 1 of U. S. assignment referred to in your letter of November 15, 1939: O. Z. 8244—Appln. No. 2,586—Has issued as patent No. 2,140,505, and patent number should be included.

Page 2 of U. S. assignment referred to in your letter of November 15, 1939: O. Z. 8823—Appln. No. 71984—Has issued as patent No. 2,176,441, and patent number should be included; O. Z. 9159—Appln. No. 116,124—Had issued as patent No. 2,167,604, and patent number should be included; O. Z. 9348—Appln. No. 138,748—Has issued as patent No. 2,173,482, and patent number should be included.

Page 4 of U. S. assignment referred to in your letter of November 15, 1939: O. Z. 10189—Application number should be 225,726; O. Z. 10642—Application number should be 264,879-1/2; O. Z. 10739—Application No. 270920, assignment to Standard-I. G. recorded November 15, 1939; therefore this number should be deleted from new assignment; O. Z. 10802—Application No. 274,736, assignment to Standard-I. G. recorded November 15, 1939; therefore this number should be deleted from new assignment.

5. As to the following applications, please send us new assignments from the inventor to I. G. Farbenindustrie:

O. Z. 8728-A Appln. No. 60,638  
" 8728-B " " 270,650

\* \* \* \* \*

If you will be kind enough to send us an assignment as indicated, it will provide us with a document free from interlineations or erasures which we can record in the United States Patent Office. In the event that the authentication usually required cannot be obtained at this time, please send us the assignment executed by I. G. without authentication.

Very truly yours,

STANDARD-I. G. COMPANY,  
By /s/ ROBERT P. RUSSELL,  
*Vice President.*

WEC: MS

BCC: Mrs. E. V. Kollander.

Miss A. McGann.

Miss J. Ornitt.

Miss B. Hammersley.

## ARNOLD EXHIBIT No. 80

I. G. FARBENINDUSTRIE AKTIENGESELLSCHAFT LUDWIGSHAFEN A. RH.,

March 17, 1941.

Assignments to Mr. Currie.

MESSRS. STANDARD-I. G. COMPANY,  
New York.

DEAR SIRs: In compliance with the request contained in your cable A C 18, 11/15/40, we have prepared new assignments in favor of Mr. Currie and enclosed herewith we are now mailing the following documents via Japan: Assignments for Australia, Canada, Great Britain, British India, Union of South Africa, and Trinidad.

You will note that we have compiled Schedule A & B cases in only one assignment, which we hope will be convenient to you. Patents and applications which have expired or have been abandoned with your and IHP's consent since the various assignments to SIG have been executed have not, of course, been taken up in the present assignments to Mr. Currie. Besides, the new documents do not contain some more cases and the reasons for their deletion are explained below.

## Australia:

Patent	104 468—O. Z. 9522-----	}	stand in the name of IHP.
	101 604—O. Z. 8885-----		
	101 132—O. Z. 8896-----		
	104 997—O. Z. 9496-----		
	9188/32—O. Z. 7124A-----		
	9189/32—O. Z. 7124B-----	}	stand in the name of IHS.
Patent	109 766—O. Z. 10768-----		
appln.	2395/39—O. Z. 10739-----		
	2169/39—O. Z. 10802-----		
	2273/39—O. Z. 10809-----		
	2766/39—O. Z. 10824-----	}	
	3027/39—O. Z. 10905-----		

## Canada:

Patent	295 767—O. Z. 3490B-----	}	do not fall within the scope of our agreements.
	303 851—O. Z. 3491C-----		
	325 535—O. Z. 4984A-----		
	434 955—O. Z. 4214B-----		
	305 187—O. Z. 5145-----		
	339 076—O. Z. 6913-----	}	stand in the name of IHP.
	348 860—O. Z. 7757-----		
	386 063—O. Z. 8885-----		
	373 230—O. Z. 8896-----		
	345 382—O. Z. 5239 Hoe-----		
	345 383—O. Z. 5239 Hoe-----	}	

## Great Britain:

Patent	488 745-----	}	do not belong to IG.
	499 372-----		
	433 254—O. Z. 8164-----	}	do not fall under our agreements.
	421 196—O. Z. 8003-----		
	326 500-----		
	283 840—Le. 1553-----		
	298 349—O. Z. 4222-----	}	these cases come within the Jasco agreement and, therefore, are not to be assigned to Mr. Currie.
	299 037—O. Z. 4386A-----		
	303 998—O. Z. 4325/4450-----		
	312 201—O. Z. 3935/4616-----		
	315 916—Le. 1619-----		
	317 500—O. Z. 4460/4701-----		
	346 785—Le. 2168-----		
	349 022—Hoe. 4704-----		
	367 892—O. Z. 6341-----		
	368 256—O. Z. 6384-----		
	338 262—Ord. 549-----		
	462 181—O. Z. 8533-----		

# 4922 INVESTIGATION OF THE NATIONAL DEFENSE PROGRAM

## Great Britain:

Patent 272/101-----	}	refers to an Italian application.
480 739—O. Z. 9442-----		
493 575—O. Z. 9522-----	}	stand in the name of IHP.
376 358—O. Z. 6913-----		
8508/39—O. Z. 10739-----	}	stand in the name of IHS.
7909/39—O. Z. 10768-----		

## British India:

Appln. 26558/39—O. Z. 10824----- stand in the name of IHS.

## Union of South Africa:

Patent 560/36—O. Z. 8896-----	}	stand in IHP's name.
1081/37—O. Z. 9496-----		
Appln. 574/39—O. Z. 10739-----		
602/39—O. Z. 10768-----		
709/39—O. Z. 10809-----		
714/39—O. Z. 10824-----	}	
878/39—O. Z. 10905-----		

## Trinidad:

Patent 28/39—O. Z. 5013-----	}	stand in IHP's name.
30/39—O. Z. 7124A-----		
31/39—O. Z. B-----		
38/39—O. Z. 8424-----		
27/39—O. Z. 6913-----		
39/39—O. Z. 9100-----		
46/39—O. Z. 9397-----		
44/39—O. Z. 9533-----		
45/39—O. Z. 9612-----		
32/39—O. Z. 10035-----		

Please note that the following patent rights, though they are the property of

Usac (Canadian FPA/HSA Cases),

IHS (British HSA Cases),

IHP (British FPA/DHA Vases),

have now been assigned from I. G. to Mr. Currie:

## Canada:

Patent 287 884—O. Z. 3490 A-----	}	these cases are classified FPA/HSA.
371 802—O. Z. 8840-----		
Appln. 442 283—O. Z. 9448-----		
446 728—O. Z. 9635-----		
452 157—O. Z. 9960-----		
455 067—O. Z. 10189-----		
462 805—O. Z. 10739-----		
463 338—O. Z. 10768-----		
463 821—O. Z. 10802-----		
464 156—O. Z. 10824-----		
464 094—O. Z. 10809-----	}	
Patent 377 488—O. Z. 9099-----		

is also an FPA/HSA case standing, however, in the inventor's name (Dr. Linckh); an assignment to IG is enclosed herewith.

Appln. 435 782—O. Z. 9104----- an assignment each from the inventor to IG and to SIG was sent on Dec. 23, 1939, to Messrs. Hutz and Joslin; as you will see from the enclosed assignment to Mr. Currie, this application has also been taken up therein.

Great Britain:

Patent 468 434—O. Z. 9104.....	}	these are FPA/HSA cases.
473 932—O. Z. 9131.....		
469 618—O. Z. 9148.....		
474 448—O. Z. 9261.....		
478 318—O. Z. 9448.....		
503 247—O. Z. 9635.....		
496 880—O. Z. 9919.....		
490 090—O. Z. 9960.....		
502 542—O. Z. 10189.....		
506 064—O. Z. 10190.....		
503 622—O. Z. 10236.....		
516 403—O. Z. 10802.....		
516 352—10809 O. Z. ....		
518 372—O. Z. 10824.....		
497 607—O. Z. 10103.....	}	these cases are classified FPA/DHA.
502 091—O. Z. 10136.....		
505 496—O. Z. 10291.....		

Further assignments for other countries will follow shortly.

Referring to your letter PL 101 of December 24, 1940, re "List of patents and applications handled by I. G. for our account" we shall also let you have shortly the names and addresses of the various patent agents of all countries except England and France handling cases for your account. In this connection we refer to our letter of Nov. 23, 1939, with which we sent you the addresses of our patent agents in the countries in question.

Yours truly,

I. G. FARBENINDUSTRIE AKTIENGESellschaft  
[Gez.] HOLDERMANN PPA. BRAUN

- encl: 1 Ass. O. Z. 9099 Canada  
1 " from inventor to IG  
1 " Australia  
1 " Canada  
1 " Great Britain  
1 " British India  
1 " Union of South Africa  
1 " Trinidad.

ARNOLD EXHIBIT No. 81

STANDARD OIL DEVELOPMENT COMPANY,  
P. O. Box 243, Elizabeth, N. J., February 21, 1940.

Mr. F. A. HOWARD,  
26 Broadway,  
New York, N. Y.

DEAR MR. HOWARD: One of our company auditors presently auditing Development's books requested permission to confirm with I. G. F. our loan to them of £37,500, which is on deposit with the Hambros Bank Limited.

Because of certain circumstances about which I may not be familiar, I hesitate to grant permission for him to write to I. G. F. without your approval. Will you advise if you feel this matter should be confirmed with I. G. F.

Yours very truly,

D. G. TOMKINS.

DGT/rhw  
CC—Messrs. W. Schaefer, C. B. Ware, B. E. Walton.

ARNOLD EXHIBIT No. S2

FEBRUARY 28, 1940.

Mr. D. G. TOMKINS,  
*Bayway.*

DEAR MR. TOMKINS: I would think it would be better for our auditors not to write the I. G. F. concerning the matter brought up in your letter of February 21st.

Our file of telegrams on this subject is open to the auditors and represents all the record there is on the matter.

We do not know of any certain channel by which letter communications can be passed back and forth to Germany at the present time. An attempt to communicate with the I. G. F. by letter would probably be unsuccessful and would perhaps invite reexamination of this whole matter by another department of the British government.

The only helpful suggestion I can make is that the auditors might write the telegraph companies enclosing copies of one or more of the key telegrams from I. G. F. and ask from the telegraph company concerned confirmation that the message was in fact deposited with its Berlin office by I. G. F.

It would seem that this record would be satisfactory for the auditors and it would also be helpful for the Jersey interests, since there may always be some difficulty in proving the authenticity of telegraphic messages.

Very truly yours,

FRANK A. HOWARD.

ARNOLD EXHIBIT No. S3

MARCH 28, 1940.

Copies of Agreements to J. R. Carlisle.

Mr. F. A. HOWARD,  
*Building.*

DEAR MR. HOWARD: Under the contract procedure which we set up in July 1938, we have been sending to Mr. Carlisle copies of printed agreements "relating to hydrogenation, cracking, polymerization, and any I. G. connection and agreements relating to European patent rights."

Due to the censorship of mail to Great Britain, we are wondering whether you would not like to advise us whether we should continue the above procedure or modify it. At the present time, the S. I. G. Co.-USAC Agreement Interpretation is ready to go out and on talking with Mr. Currie, he felt that we should get your opinion whether we should continue sending copies of the above class of agreements to Mr. Carlisle.

Will you please consider this matter and let us have your advice? We will not send anything further to Mr. Carlisle until we hear from you.

Very truly yours,

/s/ ROSS H. DICKSON.

RHD:EA

cc: Messrs. R. P. Russell, F. R. Loofbourow, W. E. Currie, E. V. Murphree, H. R. Tate, N. E. Loomis, H. W. Fisher, G. H. B. Davis, P. L. Young.

Original returned to RHD with notation "Correct. Do not send to England any copies of agreements or letters with Germans. F. A. H."

ARNOLD EXHIBIT No. S4

30 ROCKEFELLER PLAZA,  
 New York, June 6, 1940.

Mr. R. H. DICKSON,  
*26 Broadway.*

DEAR MR. DICKSON: I acknowledge receipt of your letter to Mr. Currie, dated May 28th, concerning the termination of the Jasco Net Expense Agreement.

I believe we should consider that the termination of the Jasco Net Expense Agreement is adequately evidenced by the cables, copies attached, as follows:

To Anilinfabrik from Chemnyco, dated September 6, 1939. To Inchemy from Igeskretariat, dated September 9, 1939. To Anilinfabrik from F. A. Howard, dated December 28, 1939. To F. A. Howard from Anilinfabrik, dated January 12, 1940.



I realize that the cable in which I. G. definitely agrees to the termination of the Net Expense Agreement was addressed to Chemnyco but I doubt that we should try to obtain anything more direct at the present time since any communication in that respect might be picked up by the British censorship and complicate Mr. Carlisle's Jasco difficulties in London.

I believe the termination provision of the Net Expense Agreement to the effect that two years' notice is required for termination does not present an obstacle since that provision would apply only where one of the parties was unwilling to terminate, whereas the termination which was actually effected was done by mutual consent and would itself have the effect of abrogating the termination clause to which you refer.

Yours very truly,

F. R. LOOFBOUROW.

FRL: JW.

Encs.

cc: Mr. W. E. Currie.

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#### ARNOLD APPENDIX A

#### DR. GREIF'S MESSAGE

The interest on debentures in round figures is \$1,600,000 (5½% on about \$30,000,000). If you add to that the \$808,000 which would be the profit in the first case, you would have \$2,400,000, which is one and a half times the interest; and in the second case, if you add the \$1,718,000 to the \$1,600,000 you would get \$3,300,000, which is about twice the interest.

MAY 9TH, 1932.

MAY TENTH, 1932.

Dr. W. GREIF,

*Vice President, American I. G. Chemical Corporation,*

*No. 521 Fifth Avenue, New York, N. Y.*

DEAR DR. GREIF: This will acknowledge receipt of your letter of May 6th, with enclosures thereto, from which it appears that the transaction as arranged by the management of the company, from the standpoint of last year's balance sheet, would be to the very direct advantage of the American I. G. Corporation, so that if I could view it from this standpoint alone, there would be no question in my mind as to not voting in favor of its ratification at the next Board meeting.

There is, however, another and possibly more important question involved, and that concerns the sale of the I. G. Farben bonds and the purchase of the I. G. Chemie shares. Yesterday afternoon, as suggested by you, I discussed this matter quite fully with Mr. Garrard Winston, of the firm of Shearman and Sterling. He feels that without more definite information as to the source of revenue of the I. G. Chemie that neither Mr. Mitchell nor I could vote in favor of the ratification by the Board of the transaction. While it is fully appreciated, as pointed out in your letter, that the I. G. Farben guarantees the payment of dividends on the common stock of I. G. Chemie at the same rate as declared for the corresponding business year on the common stock of I. G. Farben, still at the same time if it is impossible, owing to the exchange regulations, to transfer funds out of Germany, then under such guarantee, how could and would any deficiency of earnings of I. G. Chemie be made good? If the I. G. Chemie has a sufficient income entirely from sources outside of Germany, which are and will remain the assured independent property of the company, and we possessed definite knowledge to establish this as being the situation, then the transaction could be viewed from a different angle. In the absence however of such information, it would appear that the transaction in question involves the sale of a senior security, i. e. the bonds of the I. G. Farben, and the purchase of a secondary security, i. e. the shares of the I. G. Chemie.

I am confident on Dr. Schmitz' arrival here in the near future that he will be able to straighten the matter out to the satisfaction of all parties concerned. Under these circumstances, I cannot but feel that the best plan to pursue would be to defer holding the meeting and publishing the last year's balance sheet until after the arrival here of Dr. Schmitz.

Yours very truly,

CT-MRT

SHEARMAN & STERLING,  
55 Wall Street, New York, May 18, 1932.

Mr. WALTER C. TEAGLE,  
26 Broadway, New York.

DEAR WALTER: I enclose copy of letter I have written today to Mr. Mitchell in the American I. G. matter.

Yours very truly,

GARRARD WINSTON.

GW: GBC  
Enclosure.

SHEARMAN & STERLING,  
New York, May 18, 1932.

Mr. C. E. MITCHELL,  
Chairman of the Board,  
The National City Bank of New York,  
55 Wall Street, New York.

DEAR MR. MITCHELL: I have had a talk with Dr. Greif in reference to the minutes of the American I. G. in connection with the investment in I. G. Chemie. I understand that these minutes will show approval of all actions of the Executive Committee by all members, except that with respect to the I. G. Chemie investment they will show Messrs. Mitchell and Teagle voting in the negative.

Dr. Schmitz had expected to be in New York by June but negotiations with respect to an international nitrate cartel have begun and he is necessarily detained abroad in connection with those negotiations. You will not have, therefore, an opportunity to discuss the matter with him in time to permit the balance sheet of the American I. G. for the close of the year 1931 to be published. This balance sheet is already due. The only reason why you and Mr. Teagle are unwilling to approve the I. G. Chemie investment is based on your desire to be furnished with additional information with respect to this Company, which probably is available only upon consultation with Dr. Schmitz. The investment in I. G. Chemie was made on June 30, 1931, and approved by the Executive Committee on August 30 of that year. Since then the situation in Germany has not improved, it is particularly difficult—if not impossible—to obtain exchange, and it might be inadvisable to reverse the transaction and reacquire I. G. Farben 6% Bonds. I believe, therefore, in all the circumstances, that if the Board of the American I. G. approves the action of the Executive Committee over your vote to the contrary, you will have exercised in reasonable manner your duties as directors.

When you have an opportunity to discuss this matter with Dr. Schmitz, I believe that you should insist upon obtaining the requisite information with respect to the I. G. Chemie.

Yours very truly,

GARRARD WINSTON.

Copy to Mr. Teagle, Dr. Greif.

19TH MAY, 1932.

Mr. GARRARD WINSTON,  
Messrs. Shearman & Sterling,  
155 Wall Street, New York City.

MY DEAR GARRARD: Many thanks for your note of the 18th and enclosure thereto. I saw Charlie last night at dinner and he told me that you had o. k'd. the procedure as outlined by Dr. Greif, and I will act accordingly.

I want to express to you my very sincere appreciation of your advice in the matter.

Yours truly,

(SGD) W. C. TEAGLE.

wet-smm.

MAY TWENTY-SIXTH, 1932.

Personal.

Mr. CHARLES MITCHELL,  
National City Bank,  
No. 55 Wall Street, New York, N. Y.

MY DEAR CHARLIE: Referring to our talk coming downtown on the subway yesterday morning, I attach hereto copy of a memorandum dictated by my asso-

ciate, Riedemann, who is now here, and who will be returning to Europe the middle of June, and whom I have suggested should see Bosch along the lines we discussed.

If you would like to have the memorandum which Riedemann has drafted changed in any particular please do not hesitate to do this, as Riedemann is naturally anxious to convey the message in the exact form which we desire.

Yours very truly,

(SGD) W. C. TEAGLE.

CT-WR.

Enclosure.

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26 BROADWAY, NEW YORK, May 26, 1932.

I. G. Matters.

Mr. W. C. TEAGLE,

Office.

DEAR WALTER: Attached are two copies of the memorandum I have just dictated after the information you gave me this morning. I shall be glad to have your comments thereon.

Very truly yours,

H. RIEDEMANN.

HvR/ES

Encl.

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MEMORANDUM REGARDING AMERICAN I. G.

Inform Bosch of the transaction between American I. G. and the I. G. parent company involving the exchange of I. G. bonds against the I. G./Chemie shares last summer; how the American directors learned of the transaction a long time after same had been consummated; that they, not knowing anything regarding the I. G./Chemie shares and considering the I. G. parent company's guarantee regarding dividends, under certain circumstances of no practical value (if, for instance, a transfer of currency from Germany to Switzerland would be impossible) they could not conscientiously sanction the exchange of a superior security, namely a bond, against one of a secondary class, i. e., a share of which nothing was known; that, however, when they voiced their misgivings it was found that the transaction could not be reversed and that, therefore, it had to be sanctioned by a majority vote of the Board, the two American directors casting a vote of "No."

Then explain to Bosch that the American directors feel that no transaction between parent and subsidiary company like that of the exchange of I. G. bonds against the I. G./Chemie shares last summer should be made without same having been previously submitted to all directors, they, including the American directors, having been given a chance to fully investigate the nature of such transaction and that the American directors feel that a resolution to that effect should be passed without delay and entered into the Minutes. Get Bosch's consent thereto and see that same is conveyed to the company here.

I should like to go further than that and, pointing to the nervousness created here by the Kreuger and Toll affair, explain to Bosch that the company here should be very careful in how transactions are entered in their books. I want to refer to the fact that the records of the company as kept in the past do not clearly show that certain transactions were part of one and not separate and independent transactions; that, for instance, the books do not clearly show that the purchase of Standard Oil Company (New Jersey), stock at \$10 was only part of the transaction regarding the exchange of I. G. bonds so that any investigation would surely come to ask how, when, and where New Jersey stock could ever have been purchased at \$10.

I should also like to point out that the break in the price for I. G./Chemie shares within sixty days after the exchange had been perfected might seem strange to any investigation.

I wonder whether I have not to ask that Schmitz be present at the discussion so that he cannot get the feeling that Bosch is being informed behind his back. The reason why I should like to have a somewhat detailed discussion on these points is that I do not know whether Bosch is informed in any way about these questions and that, therefore, some details may be asked and also because I should like to impress on Schmitz how necessary it is to handle these inter-company matters in accordance with American custom.

26TH MAY 1932.

Dr. WILLIAM GREIF,  
*American I. G. Chemical Corporation,  
 #521 Fifth Avenue, New York City.*

MY DEAR DOCTOR: In order to complete my file I would much appreciate your letting me have a copy of the resolution passed at yesterday morning's Board Meeting confirming the particular transaction which has been the subject of the recent discussions between us.

Yours truly,

W. C. TEAGLE.

wct—smm.

MAY 31, 1932.

Mr. C. E. MITCHELL,  
*55 Wall Street, New York, N. Y.*

MY DEAR CHARLIE: Just a few lines to acknowledge receipt of your letter of May 27th. My views as to transactions of this character are exactly the same as those expressed by your good self. I have taken the liberty of giving Mr. Riedemann a copy of your letter and am confident that on his return to Europe the end of the month he will be able, in his usual diplomatic way, to convey to Professor Bosch and Dr. Schmitz our views on this particular question. I am quite certain that when our position is made perfectly clear to Professor Bosch he will unhesitatingly favor the passage of a resolution by the directors here along the lines suggested in your original memorandum. I will not fail to advise you as soon as I hear from Mr. Riedemann after his return to the other side.

Yours very truly,

W. C. TEAGLE.

AMERICAN I. G. CHEMICAL CORPORATION,  
*521 Fifth Avenue, New York, May 27th, 1932.*

Mr. WALTER C. TEAGLE,  
*President, Standard Oil Company of New Jersey,  
 26 Broadway, New York, N. Y.*

DEAR Mr. TEAGLE: I take pleasure in handing you enclosed herewith photostated copy of the minutes of the last Special Meeting of our Board of Directors held on Wednesday, May 25th, 1932.

Sincerely yours,

W. GREIF.

WG: CCH  
 Encl.

MINUTES of the Special Meeting of the Board of Directors of the AMERICAN I. G. CHEMICAL CORPORATION, held at the office of the Corporation, 521 Fifth Avenue, New York, N. Y., on Wednesday, May 25th, 1932, at 9 A. M., pursuant to notice.

There were present: Messrs. Duisberg, Greif, Metz, Mitchell, Teagle, being a majority of the Board.

There was also present Mr. Otto von Schrenk, Counsel for the Company.

Mr. Greif, First Vice President of the Company, presided and Mr. von Schrenk was appointed secretary of the meeting.

Notice of the meeting, with proof of service on all the directors, was presented and ordered spread at length upon the minutes of the meeting.

The minutes of the meetings of the Executive Committee held on June 24th, June 30th, July 22nd, August 11th, August 18th, October 14th, November 4th, November 18th, December 2nd, 1931; January 6th, January 20th, January 27th, March 2nd, March 16th, April 13th, April 26th, May 4th, May 20th, 1932, were read to the meeting and discussed, whereupon a resolution was moved for adoption that all actions of the Executive Committee as set forth in said minutes and all acts of the officers of the Corporation taken in pursuance of resolutions as set forth in said minutes, be ratified, confirmed, and approved, which motion was duly seconded.

Messrs. Greif, Metz, and Duisberg voted in favor of the adoption of said resolution and Messrs. Teagle and Mitchell likewise voted in favor of the adoption of said resolution, with the exception of the ratification and approval of the resolution presented at the meeting of the Executive Committee held on June 30th,

1931, and adopted at a meeting held on August 18th, 1931, authorizing the sale of Rm. 38,403,500 I. G. Farbenindustrie Aktiengesellschaft 6% Debentures and the purchase of 54,300 Internationale Gesellschaft fuer Chemische Unternehmungen, A. G. common shares fully paid, as to which they voted in the negative.

The Chairman thereupon declared said resolution duly adopted.

The minutes of the Organization Meeting of the Board of Directors held on June 15th, 1931, and of the Special Meeting of the Board of Directors held on March 30th, 1932, were read to the meeting and, on motion duly made and seconded, the same were unanimously ratified and approved.

Mr. Greif addressed the meeting on the death of Mr. Paul M. Warburg, a director of the Company and the loss sustained by the Company by his death.

All present arose from their seats in honor of the memory of the late Paul M. Warburg.

There was submitted to the meeting draft of the annual report of the Company as of March 31st, 1932, which was discussed at length by the members of the Board. Changes were discussed and agreed to.

On motion duly made and seconded, it was unanimously

*Resolved*, That the sum of \$5,000,000 be set aside from capital surplus as a reserve fund to protect values and that this item be entered on the balance sheet as of March 31st, 1932.

*Further resolved*, That the annual report as submitted to the meeting, with the changes as agreed upon, be approved."

The matter of purchasing Guaranteed Convertible 5½% Debentures of the Company was discussed and, on motion duly made and seconded, it was unanimously

*Resolved*, That the officers of the Company be and they hereby are authorized and empowered to expend up to a total of \$500,000 for the purchase, from time to time, of Guaranteed Convertible 5½% Debentures of the Company, at prices not to exceed 60, the bonds already purchased and now held by the Company to be included in said total of \$500,000."

Mr. Greif reported to the meeting regarding the business of Agfa Ansco Corporation and General Aniline Works, Inc.

On motion duly made and seconded, the meeting duly adjourned.

\_\_\_\_\_  
*Secretary pro tem.*

\_\_\_\_\_  
THE NATIONAL CITY BANK OF NEW YORK,  
New York, June 8, 1932.

Mr. WALTER C. TEAGLE,  
26 Broadway, New York, New York.

DEAR WALTER: For your information I enclose a copy of a letter which I have today written to Dr. Greif.

Yours very truly,

C. E. MITCHELL.

Enclosure.

\_\_\_\_\_  
JUNE 13, 1932.

Mr. C. E. MITCHELL,  
*Chairman of the Board, The National City Bank of New York,*  
55 Wall Street, New York, N. Y.

DEAR MR. MITCHELL: Please accept my very best thanks for your letter of June 8th.

It is with a great deal of satisfaction that I note your interest in receiving fullest information possible in regard to the investments of this company. I desire to assure you that all files, records, and particularly balance sheets and income statements in the possession of this company are at your disposal to enable you to make a complete study of same. I shall personally be pleased to hold myself at your disposal at any time to answer questions which you may wish to ask. We are likewise prepared, should you so desire, to arrange an interview for you to meet responsible representatives of the General Aniline Works, Inc.

Should this plan not meet with your approval, I would suggest that the auditors of the company, Messrs. Lafrentz & Co., who are, as you know, certified public accountants, be directed by the Board of Directors to answer such questions and make such an examination of the General Aniline Works, Inc., as will be thought necessary by yourself or other members of the Board. The company

is quite prepared to place at your disposal and the Board whatever information they have in their possession regarding Winthrop Chemical Company, which company, however, as you know, is not controlled by either General Aniline Works, Inc. or American I. G. Chemical Corporation. We take it for granted, of course, that whatever information is obtained in this manner is for the strictly confidential and personal use of all directors.

Will you please favor me with an expression of your opinion as to whether the plan of procedure suggested above meets with your approval.

Yours very truly,

W. GREIF,  
*First Vice-President.*

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AMERICAN I. G. CHEMICAL CORPORATION,  
521 Fifth Avenue, New York, June 16, 1932.

Mr. WALTER C. TEAGLE,  
*President, Standard Oil Company of New Jersey,*  
26 Broadway, New York, N. Y.

DEAR MR. TEAGLE: I take pleasure in enclosing herewith copies of a correspondence I had with Mr. C. E. Mitchell recently.

I should appreciate your giving me an opportunity of conferring with you shortly as soon as you are back in town.

Sincerely yours,

W. GREIF,  
*First Vice President.*

WG: ST

Encl.

[Handwritten:] Mr. T.: GREIF wants to see you on your return. J. E.

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JUNE 16, 1932.

Mr. CHARLES E. MITCHELL,  
*Chairman of the Board, The National City Bank of New York,*  
55 Wall Street, New York City.

DEAR MR. MITCHELL: Referring to my letter of June 13th and our yesterday's conversation, I suggest that I arrange for you a conference to meet Dr. R. Hutz, President of General Aniline Works, Inc. and its chief accountant, Mr. Baxter. Should you feel that during such a conversation, the information obtained would be insufficient, the auditors of the American I. G. Messrs. Lafrentz & Company, can be directed by yourself or the Board of Directors to make further investigations.

I note from previous conversation that Dr. Weiss, who, as you are aware, is closely connected with the management of Winthrop Chemical Corporation, is quite prepared to answer any questions you may be desirous of asking with respect to the affairs of that company.

Will you please let me know whether this plan meets with your approval.

Very truly yours,

(Signed) W. GREIF.

WG: CCH

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[Copy]

[Letterhead of the National City Bank of New York]

NEW YORK, June 8, 1932.

Dr. WILFRED GREIF,  
*American I. G. Chemical Corporation,*  
521 Fifth Avenue, New York, New York.

MY DEAR DR. GREIF: As a Director of your Company, I feel a responsibility to know beyond hearsay of the value of the assets in your balance sheet. I have already expressed myself as dissatisfied with the knowledge that I have of I. G. Chemie, and it has been promised that information regarding that Company will come to me in due course through Dr. Schmitz.

I have a like dissatisfaction with the casual information that has been given regarding the large investment in General Aniline and its affiliate, the Winthrop Chemical Company. I assume that you are prepared to afford me an oppor-

tunity to know something of that Company, its assets and its earning power. I naturally have not the time to personally make a study, and would have to ask one or two of my associates to confidentially make it for me. Are you prepared to afford me this opportunity? Your prompt reply will be appreciated.

Yours very truly,

(Sgd.) C. E. MITCHELL.

JUNE 17, 1932.

Dr. W. GREIF,  
*American I. G. Chemical Corporation,  
No. 521 Fifth Avenue, New York, N. Y.*

DEAR DR. GREIF: I acknowledge receipt of your letter of June 16th and thank you for its enclosures, which have been received in Mr. Teagle's absence. These will have his attention on his return the end of the month.

Yours very truly,

(Signed) F. E. MOTT.

FEM—MRW.

C. E. MITCHELL,  
*New York, July 21, 1932.*

Mr. FRANK E. MOTT,  
*26 Broadway, New York, New York.*

MY DEAR MR. MOTT: I have your letter of July 14th.

I have received a copy of the I. G. Chemie report, and it has been looked over carefully by our men who understand German, but has not been translated. I can only say to you that it does not give in any sense a picture of the I. G. Chemie portfolio, and I think we will have to await the coming of Dr. Schmitz to get any clearer understanding of what the situation in that company is.

Yours very truly,

C. E. MITCHELL.

JULY 26TH, 1932.

American I. G.  
Mr. WALTER C. TEAGLE,  
*26 Broadway, New York.*

MY DEAR WALTER: My long stay in Paris prevented me from seeing Bosch or Schmitz. I intended calling on them before I went to take a holiday. However, day before yesterday I began to feel so rotten that when I talked with Schmitz on the phone just now and when he told me that he and Bosch would not be in Heidelberg for the next few days, and that both were very busy and could hardly arrange a meeting within the near future, unless it be at Dusseldorf, I decided to talk the thing out with him over the telephone. I had a long conversation with him and explained the thing to him, and he told me that he thought the request made by you and Mitchell as something absolutely self-understood. He told me that he would be in New York in September, that he would then confirm to you and to Mitchell what he told me over the phone. In my discussion with him I referred to Mitchell as the prime mover.

The above being as explained, I think I'll now not try any longer to thrash matters out with Bosch and/or Schmitz. He will be in New York only four weeks after a letter could get there, and I don't think that a delay of four weeks in the matter will amount to anything.

With kindest regards,

Yours very truly,

H. RIEDEMANN.

5TH AUGUST 1932.

Personal.  
Mr. CHARLES E. MITCHELL,  
*National City Bank, New York City.*

MY DEAR CHARLIE: I am just in receipt of a letter from Riedemann, from which I extract the following:

"AMERICAN I. G.—My long stay in Paris prevented me from seeing Bosch or Schmitz. I intended calling on them before I went to take a holiday. However,

day before yesterday I began to feel so rotten that when I talked with Schmitz on the 'phone just now and when he told me that he and Bosch would not be in Heidelberg for the next few days, and that both were very busy and could hardly arrange a meeting within the near future, unless it be at Dusseldorf, I decided to talk the thing out with him over the telephone. I had a long conversation with him and explained the thing to him and he told me that he thought the request made by you and Mitchell was something absolutely selfunderstood. He told me that he would be in New York in September, that he would then confirm to you and to Mitchell what he told me over the 'phone."

Yours truly,

(Signed) W. C. TEAGLE.

wct-smm

C. E. MITCHELL,  
New York, August 11, 1932.

Mr. WALTER C. TEAGLE,  
26 Broadway, New York, New York.

DEAR WALTER: Thanks for your note of August 5th regarding Mr. Riedemann's telephone conversation with Dr. Schmitz.

Mr. Fahle is back here and has called to tell me that Schmitz quite understands our joint views and will get everything straightened out to our satisfaction when he visits New York this Fall. Mr. Fahle expects that he will get here not later than the 25th of September.

Very truly yours,

CHARLES.

15TH AUGUST 1932.

I. G. Matters.

Mr. H. A. RIEDEMANN,  
Zurich, Switzerland.

MY DEAR HEINRICH: I advised Charlie Mitchell of the information contained in your recent letter on the above subject, and the following is his reply thereto:

"Thanks for your note of August 5th regarding Mr. Riedemann's telephone conversation with Dr. Schmitz. Mr. Fahle is back here and has called to tell me that Schmitz quite understands our joint views and will get everything straightened out to our satisfaction when he visits New York this Fall. Mr. Bahle expects that he will get here not later than the 25th September."

Yours very truly,

(Signed) W. C. TEAGLE.

wct-smm

Mr. TEAGLE: Mr. Payne would like your opinion on American I. G. Chemical bonds. He is going over Mrs. Jones' investments, and she has some of them.

F. E. MOTT.

November 14, 1932.

[HANDWRITTEN:] Mr. Mott: Mr. T. is going to Amer. I. G. Board meeting in the morning and will advise Mr. Payne later. K.

21ST NOVEMBER 1932.

Personal.

Mr. CHRISTY PAYNE,  
#26 Broadway, New York City.

MY DEAR CHRISTY: As near as I can figure it out from the balance sheet and from the information which I obtained at the last directors' meeting, the liquidating value of I. G. bonds would be about two for one. I have quite a block of these bonds myself and have no intention whatsoever of doing other than holding them.

Yours very truly,

[Signed] W. C. TEAGLE.

wct-smm



The following statements of the B. F. Goodrich Co., and the Good-year Tire and Rubber Co. are included in the record at this point, at direction of the chairman of the committee, in relation to testimony, *supra*, p. 4400.

SATURDAY, MAY 23, 1942.

Senator Harry S. Truman (D. Mo.), Chairman of the Special Senate Defense Committee, announced today that in the course of the Committee's investigation of the rubber situation, a great many private studies were conducted, in addition to those that were made the subject of public hearings. Included in the material developed privately, are reports submitted by the Goodrich and Goodyear Rubber Companies, which summarize their efforts to develop synthetic rubber. The Committee believes these reports should be made available to the public at this time.

*To the Special Committee of the United States Senate Investigating the National Defense Program.*

MEMBERS OF THE COMMITTEE: My associates in The B. F. Goodrich Company and I welcome this opportunity to contribute what we can to a fuller understanding of our country's rubber problem and the production of synthetic rubber.

Our people and certainly men in the fighting services are looking to us—to the government and to industry—for *just one thing*, and that is *performance*.

What we have been dealing with in respect to supplies of rubber is a situation entirely without precedent. But, as Mr. Jesse Jones has explained to you, a program for the production of synthetic rubber has been formulated and all our energies must be concentrated on its fulfillment. We have been trying to find the right path through an uncharted field. This has demanded new kinds of cooperation between many different groups,—the government, the branches of service, many different industrial organizations, individual research specialists, and teams of production and engineering personnel.

I feel certain that we have now come out of the underbrush and that we can see the road ahead. Let us move forward as rapidly as is humanly possible.

Because we shall still be dealing with entirely new situations in creating a full-scale industry to produce 700,000 tons of synthetic rubber a year, we should make the most of the experience gained from the preliminary steps that we have taken. My remarks will, I hope, be helpful in that sense.

Blessed with the highest standard of living ever known to mankind, we have accumulated 29,000,000 cars and 5,000,000 trucks and established our normal ways of living on their use. But we had not provided for their operation an unending domestic supply of the all important raw material, rubber.

There was not *one* reason for this, but *two*. We believed that we could prevent anyone from interrupting the trade which in 1940 brought from the Far East to this country nearly 800,000 tons of natural rubber. Normally our imports from the Far East represent 97% of all the rubber that we use.

But equally important was the fact that the United States was not sufficiently prepared to believe that synthetic rubber offered a practical alternative to natural rubber. In other words, we as a nation did not think that we should need insurance; and had not been fully convinced that such insurance existed, ready to be put into practice.

The B. F. Goodrich Company has earnestly endeavored to correct both of these conditions. I believe that it would be helpful for me to sketch briefly what we have done.

In our democracy such an undertaking requires an abundance of research skill and industrial resources, and also a determination and willingness to *acquaint the American people with the program*. It means devoting time and energy to a *basic responsibility*,—of giving freely to the people and to their elected representatives, the information and such recommendations as should be made in the public interest. This The B. F. Goodrich Company has endeavored to do. And here is some of the evidence of what our own organization has done to develop American synthetic rubber.

The largest plant in the United States now in commercial operation in the manufacture of butadiene type synthetic rubber is at one of the plants of The B. F. Goodrich Company. This plant was originally engineered and built by B. F. Goodrich without government aid to operate under patents and technique developed by our company. It was later turned over to Hycar Chemical Company, a corporation jointly owned by Phillips Petroleum Company and B. F. Goodrich. This plant has a present capacity of 7,000 long tons per annum, and it is now producing at close to capacity.

This production is the result of over fifteen years of continuous effort on the part of our own laboratories and manufacturing organization. In 1926, Dr. Waldo L. Semon, our director of synthetic rubber research, under whose direction our butadiene rubbers have been brought to a commercial basis, first experimented with the manufacture of dienes and their polymerization to produce synthetic rubber.

He continued to concentrate on the broad problem, but it was a long and painstaking study. The years required to work out scientific problems are not surprising to those familiar with research work, though the layman might well become impatient or discouraged.

There was then practically no information available on the manufacture of butadiene rubbers except the meager information set forth in the German I. G. Farbenindustrie Buna patents and a few published articles. Thus B. F. Goodrich was faced with the problem of developing butadiene copolymer rubbers by tedious experimentation covering all the complex processes and techniques involved in the manufacture of such rubbers.

By 1935 the work of the B. F. Goodrich laboratories had progressed to the point where Dr. Semon recommended to the company that increased facilities be provided for the commercial development of butadiene rubbers. By this time he was able to satisfy himself of the practical possibilities that were inherent in the field of synthetic rubber.

In 1936, the company decided to incur a very substantial expense in establishing a separate research laboratory devoted solely to research in the synthetic rubber field. This laboratory was organized under the direction of Dr. Semon, with four experienced scientists as associates.

The following year, 1937, the project was expanded and eight accomplished organic chemists were devoting their time in our laboratory entirely to the development of commercial varieties of butadiene synthetic rubbers.

In 1938, construction was started on a pilot plant. This plant was completed in 1939 with a capacity of 100 pounds of synthetic rubber per day. These facilities not only made possible synthesis of the rubber, but we also built equipment for the production of our own butadiene, as we wanted to be able to develop the process right through from the basic raw materials. Meanwhile, the laboratory work was further intensified and by the end of the year 1939, fourteen skilled B. F. Goodrich chemists and chemical engineers were devoting their full time to the synthetic rubber project.

By 1940, we had fully developed two distinct types of butadiene copolymer synthetic rubber, a tire rubber and an oil resistant specialty rubber, neither of which infringed any of the German I. G. Buna rubber patents. A commercial synthetic rubber plant was completed in that year, which had a capacity of six tons per day, or about 2,000 tons a year, and had facilities for making each of the two distinct types of butadiene copolymer synthetic rubbers.

On June 5, 1940, the B. F. Goodrich Company announced its new synthetic rubber under the trade names "Liberty Rubber" and "Ameripol," signifying the American polymer, and we displayed tires made from it as the first synthetic rubber passenger car tires to be offered for sale to the public in this country.

We had two distinct objectives in mind. The first was to challenge America's scientists to speed up the development of American-made rubber that might some day be desperately needed. The second was to focus national attention on the dangerously low stocks of natural rubber on hand in this country. On that June day in 1940, stocks on hand in the United States totalled only 148,881 tons. On January 1 of this year, stocks in the country had been increased to 535,000 tons. Full credit must be given to the government and the Rubber Reserve Company, an agency of the R. F. C., for the effectiveness with which this backlog of natural rubber was accumulated. These reserve stocks make it possible for us to manufacture the war materials that we vitally need, and by the strictest conservation to bridge the gap until volume production of synthetic rubber can be obtained.

Beginning in the early summer of 1940, a few thousand of these B. F. Goodrich tires in which Ameripol replaced more than 50% of the rubber normally used, were sold to cooperative citizens and corporations at a price approximately 30% higher than the price of first quality natural rubber tires—due to the higher cost of the synthetic rubber. Many favorable reports have been received from the purchasers.

A file of photostats of letters from users of these Ameripol tires, which bear out the above statement, is attached, also a copy of an advertisement which we have published as part of our continuing policy of giving to the public the facts which we believe will be of value to them in supporting the government's program. The committee may also like to see a photograph of one of these tires which has been in use by the American Airlines Inc. on a station wagon where the service is generally far more severe than on passenger cars. This Ameripol Silvertown Tire, Serial #5496702911, was mounted by American Airlines, Inc., New York Municipal Airport, New York City, and has been driven 24,127½ miles. It was in daily service until removed so that it could be loaned to us to be exhibited to your committee.

Our company has also made and successfully tested passenger car tires in which our synthetic rubber replaced all of the natural rubber ordinarily used, except for approximately one ounce in insulation around the bead wire.

I would like to summarize here the important facts of the technical and production part of our program:

First,—The B. F. Goodrich Company has independently developed

(A) a tire-rubber, and

(B) an oil-resistant rubber

Second,—With our technical information and "know-how," a commercial plant was constructed without government aid, as previously mentioned, which is now actually producing at the rate of approximately 7,000 tons per year.

Third,—The B. F. Goodrich Company had before June, 1940, worked out also with its own resources and in its own laboratories the technique for the manufacture of butadiene-styrene type synthetic rubbers, so that when the government asked for the manufacture of butadiene-styrene synthetic tire rubber, the B. F. Goodrich Company had the "know-how" which it has given to the government together with its patents and technical information for making synthetic rubber for use in tires.

Fourth,—The B. F. Goodrich Company has already filed some 160 patent applications directed to novel features of its work, including some essential improvements resulting in higher quality synthetic rubbers. It has in course of preparation some 100 more applications. The B. F. Goodrich Company's patent position is strong because it covers real inventions relevant to actual manufacturing operations, all of which have been made available to the government without royalty return for use in the present War Effort.

As mentioned earlier, we understood it to be a part of our responsibility to inform the American people about the progress of our development, and to give every assistance to the government in converting this proven scientific accomplishment into effective insurance against a possible cutting-off of our normal supplies of crude rubber.

While our organization has been hard at work on the product itself, therefore our company has aggressively urged to the government and to the people the formulation of a sound synthetic rubber program.

On June 14, 1940, I appeared before the Committee on Military Affairs of the United States Senate at a hearing on a Bill to Provide For the Defense of the People of the United States (S. 4082), and there presented the desirability of the government sponsoring a commercial synthetic rubber plant having a capacity of 100 tons a day or 36,000 tons a year, stating that B. F. Goodrich would be willing to undertake the engineering and construction of such a plant and furnish the technical skill to complete the construction of such a plant within a year. We further recommended that in addition to this plant it would be desirable to establish one or more other plants of like capacity to be competitively operated.

We believed that progress could be made most rapidly by utilizing the spirit of competition in the service of the government program.

I should like to emphasize here the reason why we have consistently recommended government financing of large-scale "stand-by" plants for synthetic rubber production. Our company has invested a great deal of capital in the research and development work necessary to undertake the production of synthetic rubber. We have also created with our own capital modest productive capacity, but this

was feasible because we can make the special purpose type of synthetic rubber which is of such superior qualities for many uses that its high production cost is justified.

In 1939, a total of 1,700 tons of special purpose rubber was consumed in the United States; in 1940, 4,000 tons, and in 1941, 12,000 to 15,000 tons.

It is an altogether different problem to replace the 600,000 tons of rubber needed in a normal year to make tires and many other staple products. The price per pound of rubber has been less than 3 cents as recently as 1933. This was a year prior to the adoption of the last international rubber regulation plan which remained in force until the rubber plantations were captured. Although the potential production of the plantations totalled 1,600,000 tons, world consumption has averaged just over 1,000,000 tons for the last three years.

The synthetic rubber from which the Ameripol tires were made cost nearly 60 cents a pound. I testified before the Senate Military Affairs Committee that we believed that in plants having a capacity of 36,000 tons a year synthetic rubber for tires could be produced for as low as 25 cents a pound including amortization of the plants. Private industry in considering the financing of such large-scale plants would have to take a long range view and recognize that it would have to face competition with the price at which natural rubber could sell with unrestricted production. Rubber grown on the Eastern plantations could normally be sold commercially in New York at a price of 10 or 12 cents a pound or about 10 cents a pound under the average New York market price for the last two years.

Based on the United States' 1941 rubber consumption, this differential of 10 cents a pound would amount to \$171,668,000. An added cost of even 1 cent a pound would amount to \$17,166,000.

Moreover, in tires and other rubber products, rubber represents a large proportion of the cost, which magnifies the uneconomic spread between the price at which synthetic can be made and the price at which natural rubber can profitably be sold.

Following our recommendation to the Senate Committee on Military Affairs, The B. F. Goodrich Company submitted on July 5, 1940, a formal proposal to Mr. Clarence Francis of the Advisory Commission of the Council of National Defense for the engineering and building of two or more government-financed plants each having an annual capacity of 36,000 tons, one of these plants to be constructed and operated by the B. F. Goodrich Company.

Since that time, our company has submitted a number of other proposals to the government, urging the government sponsorship of "standby" synthetic rubber plants, and on May 1, 1941, presented to government officials a summary of America's rubber position and recommended the construction of government-financed standby plants having a combined capacity of 100,000 to 300,000 long tons per year. This presentation was summarized in the form of charts which have been mounted on an easel for ready reference. A copy of it, reduced in size, accompanies this statement.

On December 19, 1941, B. F. Goodrich and others entered into an agreement with the Rubber Reserve Company, making fully available to Rubber Reserve and operators for Rubber Reserve, without any royalty return to B. F. Goodrich, both the patents and the "know-how" of B. F. Goodrich, even though the B. F. Goodrich patents and "know-how" with respect to synthetic rubber were at least as valuable as the patent rights and "know-how" of any other in this field.

We have cooperated closely with the Rubber Reserve Company not only in the establishment of government financed synthetic rubber plants, but also in the building up of an adequate stockpile of rubber in this country and the conservation of it.

On January 26, 1942, B. F. Goodrich set forth in a series of charts, assembled in easel form for convenience, the results of an exhaustive investigation, the purpose of which was to show the absolute necessity of the greater conservation of rubber and rubber products, and in which are outlined the projected rubber requirements of the United Nations and the probable sources of rubber to meet these requirements. A copy of this analysis is also enclosed for your examination.

I do not want to appear unduly optimistic about the progress that we have made. We still have a lot to learn about synthetic rubber. Frankly, the problem of making satisfactory truck tires with synthetic rubber is still a big one. We have made strides and will reach that goal, if day-and-night effort brings the results in the weeks and months ahead that it has in the past. We are told

that Germany has not yet successfully used synthetic rubber 100% in truck tires. We are challenged to accomplish this before the end of 1942..

We must rush the building of synthetic plants without losing a moment. Synthetic rubber production estimates have been made for the years 1943 and 1944. But these estimates might be upset by shortage of structural materials, transportation delays and shortage of experienced engineering personnel. The Government and industry must organize so that work will proceed with the utmost speed, overcoming all hindrances. It has been indicated that necessary priorities will be given; and this, of course, is fundamental.

Speed in the erection of plants to produce butadiene and styrene is of vital importance, for these are the basic materials required for this program. We must have adequate production of the necessary raw materials from the chemical and petroleum industries in order for the synthesis plants, which are the responsibility of the rubber industry, to turn out their product—synthetic rubber.

Equally important, however, is for us all to understand clearly that we have two other equally big jobs to do; One is the collection of scrap rubber so that we can fully utilize the facilities that we have for making reclaimed rubber, and the other greater conservation of rubber.

The scrap rubber situation is critical and calls for prompt and effective action. In the months and years that preceded Pearl Harbor it was not possible for anyone to appreciate fully the vital necessity of building synthetic rubber producing capacity on anything like the scale now scheduled. But today no one can fail to see the danger of failing to take the necessary action with regard to scrap rubber.

Dependence upon reclaimed rubber is a basic factor in all planning to bridge the gap until synthetic rubber begins to come in, and even thereafter, as well. In straining every fibre to make available materials to replace our lost regular supplies of crude rubber, the country has assumed that our reclaiming plants would operate at capacity, and that insofar as may be practical, this capacity would be enlarged. We can make with existing facilities 350,000 tons of reclaim a year if the scrap comes in.

But without a steady flow of scrap rubber to them, these plants cannot operate at all, or only at sharply reduced rates. The unpleasant fact is that during the first three months of this year, scrap rubber came in to the reclaiming plants at a rate of 50% below the figure needed to operate them at capacity.

Under present circumstances it is, of course, human nature for the public to hold on to old rubber, even though its useful life, except as scrap for reclaim is exhausted. This means that something more effective must be done to restore and accelerate the flow of scrap rubber to the reclaim plants.

It will take an all-out continuing nation-wide "rubber round-up" to bring in the worn and discarded rubber products that are desperately needed.

I cannot emphasize too strongly this imperative need to comb every county in this country for the scrap rubber that will help us to meet the rubber crisis. We must have reclaimed rubber to use in stretching out our crude rubber stockpile for manufacturing the war materials and vital civilian products. This part of the program must not lag. But it is lagging today, and that problem must be solved without the loss of another day.

The other big job we have to do is to intensify our program of *rubber conservation*.

In estimating future rubber consumption no provision has been made for the removal of present restrictions on tires for civilian use. Eventually products made of rubber must be replaced or vital services will break down. Workers must have transportation to and from distant war production jobs. A way must be found to keep America's automobiles and trucks—key factors in U. S. war or peace economy—on the road. We must keep *them* rolling, too.

This is the reason that we must press for further action which will make rubber available for the basic needs of the American people. Only one course is open. We need a much more intensive program of rubber conservation. This can be accomplished by the wholehearted cooperation of the government, industry, the Army and Navy, and private owners of automotive equipment. The rationing of civilian tires was a prompt and necessary move, but there are other possibilities which will help to accomplish the objective.

This nation's greatest rubber stockpile is in the form of unworn mileage in tires and tubes now in possession of owners of trucks, buses, and automobiles. Over 140,000,000 tires are on rolling wheels. Spare tires and excess stocks in the hands of consumers total another 33,000,000 casings. After allowances

for wear, the rubber content of these 173,000,000 tires and tubes totals around 1,200,000 long tons, nearly twice the national stockpile of new rubber. Then there is the stockpile of rubber products belonging to the fighting services. Intelligent care in the use of this stockpile of unknown mileage can keep wheels rolling longer than we think.

Cutting down driving speeds is the most important of all rubber conservation measures. The slower tires are driven the more mileage they will give. Speed causes heat and increases abrasion, and thus wears out tires quickly. For example, if motorists who used to drive 60 miles per hour on the highway, will cut down their speed to 30 miles per hour, they can get almost three times as much tire mileage. This means that months of service can be added to the life of tires now running. Millions will be astonished to find the added mileage they will get by resolutely holding down car speed. Moreover, lower speeds prevent tire carcasses from being burned up prematurely by heat which is generated within a tire at high speed. This is the great hope for the private motorist. If the carcass is well preserved it is good for one, two and sometimes three retreadings.

Tire users will also do well to memorize the magic words "Inflate-Rotate"; they are the key to the continued use of our cars. Keep air pressures up and rotate tires including the spare from wheel to wheel every 5,000 miles or less.

We can conserve by controlling inventories of rubber products. Great care must be taken so that we do not manufacture into the form of finished products that are not essential, rubber and other materials that may have to be used for essential purposes later. Attention to reducing waste in manufacturing plants should be intensified.

We must continue to review designs and specifications, making sure that necessary rubber products are suitably made but with the minimum quantity of rubber.

We must encourage service and repair, thus greatly prolonging the life of rubber products.

We must make the greatest savings that American ingenuity can obtain by using reclaimed rubber, chemicals, and substitutes for rubber wherever possible. Our laboratories must work with redoubled energy to make available as rapidly as possible whatever contributions science and long years of experience can make to the solution of the problems caused by our inability to obtain normal supplies of crude rubber.

Only if all of these measures are taken aggressively now, will sufficient rubber and reclaimed rubber be available to keep necessary civilian cars and trucks in operation. Naturally military needs will have the first call on synthetic rubber, just as is the case with natural rubber and reclaimed rubber.

Winning this war is the biggest job that America has ever tackled. And fighting the rubber problem through to a satisfactory solution is the biggest job that we have ever faced on the home front. Working against time we now have to replace America's No. 1 import, crude rubber. By sheer *will-power* we must save every scrap of rubber until we make something to take its place.

The Congress of the United States and the officials of our government are fully alert to this challenge. The people—130,000,000 strong—will, I feel sure, join them in the full cooperation which alone can bring victory.

[Signed] JOHN L. COLLYER,  
*President, The B. F. Goodrich Company.*

#### SUMMARY FOR TRUMAN COMMITTEE OF GOODYEAR SYNTHETIC RUBBER DEVELOPMENT

In October, 1933, we were first shown a sample of Buna rubber by Mr. Haslam of the Standard Oil Development Co. It was reported that this rubber gave tread wear superior to natural rubber and this fact was of great interest to us because no previous synthetic had been anywhere near as good as the natural product. The reported oil and gasoline resistance was also of interest, although the requirement for such rubber was, at that time rather small.

On November 6th, we again visited the S O Development offices and tried to interest that company in allowing us to work with them in their tire problems with Buna rubber. No interest was evidenced by Standard in this proposal and we were unable to create any in the next few months, for in February, 1934, we were given a definite rejection.

The research problem of making Buna was studied and in November, 1934, after some attempts to locate a source of butadiene, laboratory investigation was begun on methods of making butadiene and acrylonitrile, prerequisites to the experimental preparation of Buna. Early in 1935, we were generating butadiene in laboratory glass equipment and had sufficient styrene and acrylonitrile available so we were able to carry on laboratory scale polymerization experiments. In June a somewhat larger butadiene generator was available and we were able to widen the scope of our synthetic experiments.

Early in 1935 Mr. Dinsmore visited the I. G. plant in Leverkusen and received considerable information about the properties of Buna S and Buna N. He was permitted to inspect the laboratory polymerizer, but was given little information about the process. At this time Standard advised us that it was handling the Buna rights in the U. S. However, the I. G. people were non-committal. No samples were obtained from the I. G.

In November, 1936, a five gallon pot was set up for our rubber polymerization and work was continued until the following July, when a 75 gallon kettle was installed, by which time our knowledge of the process had progressed to a point where we were confident we could duplicate the German Buna on a laboratory scale. In March, 1937, Dr. Sebrell, Goodyear Research Manager, went to Germany and visited the I. G. He was told that they were making 175 tons per month (about 6,000 tons per year). He was told that they were not ready to give a decision about licenses possibly for four months.

A tire was treaded by us with Buna S in August, 1937, and another was made with Buna N in September. In this month we finally received a shipment of about 1,000 pounds each of German Buna S and Buna N and a small amount of a variety called Buna K-85. Before the end of October, we had sent to I. G. in Frankfurt, two new and two worn tires and samples of gasoline and steam hose and a gasket and piece of conveyer belt—all made from Buna type rubber, produced in our laboratories. The purpose of this was to show the I. G. that we were far enough advanced to reproduce their rubber. All through this period there was uncertainty in our minds whether I. G. or Standard would control the licensing of this type rubber. In the latter part of 1937, Goodyear took active steps to interest Dow Chemical in the production of butadiene and acrylonitrile.

On January 4, 1938, the first tires were made wholly of Goodyear synthetic. On February 7th, Dr. Duisberg, patent representative in New York for I. G., was informed of our progress and three days later was given a wholly synthetic tire to send to Germany.

In May, 1938, a series of conferences were held with Standard and I. G. representatives in New York, which did not result in any progress. Dinsmore attended a technical convention in London and, in early June, again visited I. G. in Leverkusen. On this occasion he learned that the Germans were devoting all their attention to Buna S because it was easier to process than Buna N. A new building had just been completed for the purpose of adapting Buna to production processes. Dinsmore went through this building, which was only partly equipped, and noticed that the Buna was causing many difficulties in tire processing.

In October an adequate sample of Goodyear synthetic was furnished Dr. Russell of Standard, for test purposes. In early November, Mr. Howard having just returned from Germany, a conference was proposed, but was later postponed by him. Mr. Bedford of Standard advised that Dr. ter Meer of I. G. would be in Akron December 12th. Messrs. ter Meer and Hochschwender came and discussed the Buna situation. No definite assurances were given as to the possibilities of a license and disclosure of the important operating technique.

At this time, as far as tires were concerned, we were still chiefly attracted to Buna as an interesting technical development. We were hopeful that the expanding demand for oil-resistant rubber, might permit us to commercialize Buna N while we carried on our development of tire rubber. We considered that the probable cost of these rubbers, would be too high, relative to natural rubber, to justify their use, except for special properties which natural rubber does not have. In tires, this had to do mainly with wear-resistance. Hence we worked mostly with tread compounds and with the thought of getting the best wear. It was not until Germany began to gain complete control of Europe, in 1940, that we thought of the Buna type rubbers as all-purpose substitutes. It therefore turned out that our work on producing softer rubber of the oil-resisting and wear resisting types, and our work to produce high-yields and fast production, was not altogether applicable to the type of rubber ultimately needed for an all-purpose war substitute.

Through 1939, then, we continued our experimental work with the objects just stated, in mind. We investigated large number of new polymers, developed by our Research Chemists, and studied and improved the process of manufacture. We momentarily expected a definite proposal from Standard and, in the latter part of November, such a proposal was finally submitted. Negotiations for modification of the proposed license terms were rather active into October, 1940, and continued until January, 1941. No agreement was reached as Goodyear objected to the high royalties and other terms which it considered unreasonable.

In June 1940 the Senate committee on Military Affairs had a hearing, at which Mr. Collyer of Goodrich and Mr. Bridgewater of duPont testified regarding the synthetic rubber situation. Subsequently a number of conversations were held between various representatives of the rubber industry and Mr. Francis' Defense Committee. This culminated in a meeting on Aug. 7, 1940 with Mr. Francis' Committee, and officials and technical representatives of Goodyear, Goodrich, Firestone, U. S. Rubber, General Tire, Shell, Standard Oil of N. J., Phillips, Dow, Carbide & Carbon and United Gas Improvement. Plans for producing 100,000 tons per year of synthetic were discussed. Various companies indicated how much rubber they would be willing to make. Problems of financing the plants and arranging for commercial use of the rubber were discussed. Some preliminary engineering plans and cost estimates were requested. Goodyear furnished figures, as requested. On August 27th, the second industry meeting was switched over to Mr. Schram of the R. F. C. It was explained that the reason for this was because the R. F. C. had the mechanism for financing plants and for handling rubber through its Rubber Reserve Co. Mr. Litchfield recommended to Mr. Schram a minimum program of 50,000 tons per year to enable industry to learn how to make and use the synthetic. Mr. Schram said he thought the government should finance the program.

Having been told that we should investigate raw materials supply for our own part in the synthetic program, we were busy for the next few months trying to work out arrangements for butadiene and other materials, completing and revising plant and equipment designs, according to each new suggestion coming out of Washington and submitting various cost estimates.

On December 2nd, 1940, we received unofficial advice that the government then favored four 10,000 ton plants, to be financed 25% by the operators and 75% by the R. F. C. It was said that the government preferred to deal with one party, for both raw materials and rubber, for each 10,000 ton unit. Hence, Goodyear explored both sub-contracting and joint subsidiaries with Oil and Chemical companies. A joint company with Dow Chemical was finally worked out.

Meantime in November, 1940, Goodyear completed and put into operation a synthetic plant for producing a ton of rubber per day. This plant enabled us to provide rubber on a production scale and test our producing methods and develop them more thoroughly.

The people we talked to in the government seemed to agree that an adequate educational program was sound, should be sponsored and financed by the government and should be carried out at once. We momentarily expected action and endeavored to supply all information and estimates as rapidly as possible. Nothing definite occurred until March 28, 1941, when Mr. Klossner of Rubber Reserve submitted a request for proposals to erect four 2,500 ton plants, housed in buildings capable of taking 10,000 ton equipment. We were told to make no provision for raw materials as an adequate supply was available. In January, 1941, work was started by us upon the construction of an additional private synthetic rubber plant.

On May 15, 1941, Goodyear signed an agreement of lease with DPC and started at once to get approval of site and plant design, so work could be started. At the request of Reserve, this agreement was made with Goodyear, for rubber polymerization only.

No provision was made for butadiene. The Goodyear-Dow Company was out. Almost at once, Mr. Deupree of OPM, began to hold meetings with the industry to discuss enlargement of the authorized plants. By that time, Goodyear was seriously alarmed about the trend of the war and urgently recommended (1) that the program be immediately expanded to 100,000 tons or more and (2) that raw materials plants be authorized at once. It was pointed out, by us, that the raw materials plants cost more and took longer to build and, in the case of butadiene, the processes were not so well developed as in the case of synthetic rubber itself. In early July, we were authorized to increase our plant to 10,000 tons capacity. On September 4th we were told that contracts



for butadiene were about to be awarded to Carbide, Standard and Celanese. From this time on we received very little information about the progress of raw materials except to be assured that they would be available when needed. In September, 1941, we completed our additional private plant for the production of 2,000 tons of rubber per year. This plant cost us several hundred thousand dollars. It enabled us to enlarge our production experience, train needed men and to provide essential oil resistant rubber.

September 11, 1941, Goodyear received a notice from Jasco Inc. (Standard I. G.) that we were infringing their synthetic rubber patents. In October and November revised figures were worked out for the Rubber Reserve to conform with the types of synthetic rubber which had been agreed upon as more or less standard for government plants. Revisions of the operating agreement for our 10,000 ton unit were also made.

On December 14 Mr. Litchfield attended a meeting in Washington for the purpose of discussing plans for doubling or tripling the synthetic plant project. Fast action was promised. Two days later Rubber Reserve entered into an agreement with Goodyear, Goodrich, Firestone, U. S. Rubber and Standard Oil, whereby there was to be a complete exchange of information and patent rights on synthetic rubber for the duration of the emergency. Our initial contribution to this pool consisted of 65 separate inventions, 10 covered by patents and 55 by patent applications, for which we did not request and will not receive any compensation or royalties.

On January 17, 1942, Goodyear was authorized by Rubber Reserve to increase the capacity of its DPC synthetic rubber plant from 10,000 to 30,000 tons per year. The first unit of the plant will be ready for operation in May, 1942.

This chronological history of Goodyear's synthetic efforts is necessarily limited to the most essential details. It would be difficult to present an accurate account of the weeks which were spent in negotiating and re-negotiating agreements to produce government rubber in conformity with each change of plan proposed by government authorities or the painstaking work which was done in designing, testing and revising equipment for large scale production with which we had had limited experience.

Although our negotiations with Standard Oil and the I. G. were time-consuming and fruitless, we must, in fairness state that, had they been successful, they would have resulted only in a somewhat larger commercial plant for oil-resistant rubber—perhaps 5,000-10,000 tons per year. This would have done relatively little to expedite the tire rubber program, which is now of major interest.

On the other hand, the bottle-neck of the government program has been, and is today, the production of butadiene. Lack of this material would have made any large expansion of private rubber plants worthless, and failure to keep pace in this respect with the development of rubber polymerization must necessarily add many months to our rubber program.

Statement submitted by Dr. Earl N. Bressman, Director, Agricultural Division, Office of the Coordinator of Inter-American Affairs, to the Defense Investigating Committee of the Senate, May 15, 1942.

At the request of the chairman of this committee, Senator Truman, I submit the following statement concerning the work on rubber development with which I have been connected. This work was begun several years ago while I was in the Department of Agriculture. It was sponsored, encouraged, and personally directed by the then Secretary of Agriculture, Henry A. Wallace, now Vice President of the United States, and had the full approval of President Roosevelt.

On September 29, 1938, at the time of Hitler's partition of Czechoslovakia and the Munich conference, a report on "The Rubber Situation in the United States" was made to the Secretary of Agriculture by the Bureau of Agricultural Chemistry and Engineering. This report was made at the request of President Roosevelt, who wanted to know what our situation with respect to rubber would be in case we could not get it from the Far East.

Among the recommendations of this report were: First, that rationing of rubber supplies for nonmilitary uses be promptly undertaken in the event supplies of rubber from the Far East should be cut off; second, that tires and tubes fabricated from synthetic rubber be thoroughly tested to determine their wearing qualities; third, that a revolving stock pile of crude rubber equivalent to a 2 years' supply be accumulated and stored within our borders; and fourth, that, as a program looking toward the future, natural rubber production should be encouraged in the Western Hemisphere.

Mr. Wallace's point of view concerning rubber was set forth in an article in the New York Times of July 9, 1939, in which he said: "In case of a world war, our lack of this product is likely to be our Achilles heel. It is the greatest obstacle to our having a self-sustaining hemisphere." He was anxious to develop sources of rubber in this hemisphere, partly to make this country less completely dependent on rubber supplies in the Far East, and partly to promote healthy trade within the Americas.

From the time Mr. Wallace became Secretary of Agriculture in 1933, he vigorously supported every rubber activity that was proposed to meet situations that were developing. Research was encouraged and later a farseeing program for developing rubber cultivation in Latin America was undertaken. It was my responsibility, as scientific adviser to the Secretary, to exercise general supervision over all this work. Some of it has since been transferred to the Office of the Coordinator of Inter-American Affairs, where I am now head of the Agricultural Division. Other phases are still being carried on in the United States Department of Agriculture.

Mr. Wallace's thought and effort were centered on four different lines of activity, all intended to assure adequate rubber supplies for the Nation. These were:

1. Encouragement of production of natural rubber in Latin America.
2. Encouragement of production of natural rubber in the United States.
3. Development of synthetic rubber.
4. Building up a rubber stock pile against the day of need.

The object of this statement is to tell what has been done and is being done in each of these four lines of work. I shall have to quote the former Secretary of Agriculture at some length, since on various occasions he represented the Department of Agriculture in public hearings and voiced not only his own personal views but also those of the Department staff working in this field.

#### ENCOURAGEMENT OF PRODUCTION OF NATURAL RUBBER IN LATIN AMERICA

Activity in encouraging the production of natural rubber in Latin America was undertaken by the Department of Agriculture not only in the interests of national defense but also to promote directly the interests of United States agriculture and United States industry. We found that Latin American countries were increasing their production of farm commodities, such as corn, wheat, and cotton, which came into competition with our own farm products. This tended to handicap our farmers in the world market and also, since we could not ourselves buy these Latin American farm products, made it more difficult for our manufacturers to sell their goods in Latin American countries.

We knew that there were certain strategic raw materials which could be produced in tropical America and which would be complementary rather than competitive with our own production. Outstanding among these was rubber. Commercial production of rubber had originated in South America, but because of the prevalence of leaf-spot disease and lack of scientific information had decreased rather than increased. In the meantime, the seeds of South American rubber plants had been taken to England and from there to the Dutch East Indies and Malaya and nearby areas. As a result, 96 percent of the world's supply of rubber came from the east.

Discussions with experts in the Bureau of Plant Industry convinced us that there were real possibilities in restoring rubber to its rightful place in the economy of tropical America. The consensus of opinion of these experts was contained in a memorandum which I wrote to Secretary Wallace on February 8, 1938. Agronomists in the Bureau of Plant Industry had prepared a list of areas in southern Mexico, Guatemala, Honduras, Nicaragua, Costa Rica, Panama, Colombia, Ecuador, Venezuela, the Guianas, Haiti and Trinidad, where the type of rubber known as Hevea might be grown. The agronomists also pointed out that the type known as Castilla is indigenous to northern tropical America, and that growing this variety would get away from the leaf-spot fungus disease which is a handicap to rubber production in South America.

Acting on the basis of these preliminary investigations, Secretary Wallace, on February 10, 1938, appointed a departmental committee on tropical Latin America and asked that this committee report back within a few weeks.

Nine bureaus and offices of the Department collaborated in the report of this committee, dated March 1938. They were the Bureau of Agricultural Economics, Public Roads, Plant Industry, Agricultural Engineering, Animal Industry, Entomology and Plant Quarantine, the Forest Service, the Extension Service, and the Department Library.

This report declared: "In the light of present political conditions and trends it is important that the United States immediately strengthen its relationships with Latin American countries in order (a) to enlarge its sources of supply of strategic raw materials in nearby areas, and (b) to forestall further economic and probably subsequent political penetration of Latin America on the part of certain European and Asiatic countries."

The report declared further: "The production in tropical Latin America of certain specialized crops, such as rubber, abaca, etc., on which the United States is dependent to an important extent, should be encouraged. At the present time, the rubber and cordage industries of the United States are dependent upon raw materials grown in large part in the tropical East Indies. In case of an international crisis, this country could be subjected to major hardship and seriously crippled if supplies of these raw materials were cut off.

"The principal commercial source of rubber at the present time is the *Hevea brasiliensis*, which is native to tropical America. The rubber industry has not developed in tropical America largely because of labor conditions, and certain disease and production problems which preliminary surveys indicate could be overcome through the initiation of an adequate research program. In order to determine the feasibility of establishing commercial rubber production (both Hevea and Castilla) in Mexico, Central America, the West Indies, and that part of South America north of the Amazon, it is desirable to have an immediate survey of existing plantations, the distribution of diseases affecting production, and the location of areas suitable for commercial development. With data derived from such surveys and existing climatic data, it should be possible to determine with some degree of certainty areas suitable for development. To accomplish this with reasonable dispatch, several survey parties should be sent into the field. Following the analysis of the data gathered by the survey parties, demonstration-research stations should be established to carry on necessary investigations in (1) breeding rubber plants for yield and disease resistance, (2) nursery production practices, and (3) plantation management, including soil problems."

Comprehensive and detailed information was given in the report concerning rubber production and possibilities, country by country, in Mexico, Central America, islands of the Caribbean, and northern South America.

Immediately following the receipt of this report, Secretary Wallace, on behalf of the Department of Agriculture, asked the Budget Bureau for approval of a supplemental appropriation for encouraging the production of strategic raw materials, including \$65,000 for a rubber survey. The Department's statement justifying this request, dated April 12, 1938, said in part:

"It is proposed to survey the Latin American countries and obtain information concerning soils, vegetation, climatic factors, and disease conditions, particularly as they pertain to the cultivation of rubber, quinine, and other valuable tropical plants needed by the United States. Through these surveys it is hoped to locate the areas where cultivation of these plants might be successful and to discover disease-resistant strains which could be used in the commercial production of rubber. By encouraging the cultivation of these products, we would not only protect our source of supply in times of national emergency, but we would also aid in establishing better trade relations with our Latin American neighbors."

Later that year, on June 7, Secretary Wallace appeared before a subcommittee of the Senate Committee on Appropriations, to discuss the matter. He said:

"The United States has suffered severe losses in its foreign markets in Europe and faces prospective further losses in the Orient for its agricultural products. American agriculture, therefore, must find new foreign outlets elsewhere or greatly curtail its total production. Latin America, particularly in the Tropics, offers at the present time the only important additional potential foreign market for any of our surplus agricultural products, such as wheat flour and other cereal products; pork and lard; rice; canned, dried and fresh fruits and vegetables; and dairy products. A substantial trade between the two areas already exists but an expansion of this trade depends upon an improvement in the purchasing power of the Latin American countries. Fortunately these countries are important present or potential producers of a number of strategic raw materials, such as rubber, quinine, tropical woods, medicinal and insecticidal plants and products, and other noncompetitive raw materials greatly needed by the United States. Thus there exists the primary requisite for the building of closer ties of friendship between Latin America and the United States, namely, a sound basis for reciprocal trade between the two areas which if further developed would be directly beneficial to American agriculture and to our national economy.

"Recently there has been a tendency toward the production in tropical Latin America of Temperate Zone products of the type of which the United States has export surpluses. Under the program proposed it is hoped that the productive capacities of the Latin American countries can be directed toward the production of strategic raw materials which we need and for the production of which these countries are better suited.

"\* \* \* It seems to me imperative that the United States should take prompt action to prevent any further economic and political penetration of Latin America by countries that have been unable to disassociate political creeds from the field of international trade."

The Congress did not at that time grant the request for funds.

On August 3, 1938, the Department of Agriculture reported to the Interdepartmental Committee on Cooperation with the Other American Republics, saying: "All are aware of the Secretary's keen interest in the various proposals for improving our relations with Latin American countries. \* \* \* In general, it is felt that we could be most helpful by encouraging the production in Latin America of noncompetitive, strategic products that we must import in order to build up a basis for a larger trade with the Latin American countries."

The Interdepartmental Committee on Cooperation with the Other American Republics, of which Secretary Wallace was a member, made its recommendations on November 10, 1938, and endorsed the proposal of a tropical survey to be made by the Department of Agriculture.

Secretary Wallace testified again on the proposed tropical agriculture project on April 10, 1939, this time before the Agricultural Subcommittee of the Senate Appropriations Committee. He urged that the Senate restore items for financing this work which had been omitted from the Agricultural appropriation bill by the House. Several of the Senators expressed skepticism or outright opposition. They argued that private corporations, such as the Ford Motor Co., had been operating for years in that field, that the proposed project would be an unnecessary expense, that the United States had "almost a surplus of raw material in the nature of rubber," and that it was "effrontery" to want to "go down and tell a foreign nation what it should do and what its climate and soil are probably capable of producing." Secretary Wallace replied that both the officials of the private American corporations and the Latin American governments were anxious for this Government's help and that the War Department was in favor of the work.

"I think it is an exceedingly practical matter," said Mr. Wallace.

He cited a letter from Under Secretary of State Welles, dated April 3, 1939, in which Mr. Welles enclosed a copy of a letter from the Secretary of War, stating that "the War Department would be glad to cooperate in whatever way that may be proper and within its jurisdiction to lessen the degree of strategic dependency for an adequate rubber supply for emergency national needs."

Senator Hayden, of Arizona, after hearing Secretary Wallace's views, asked: "Now, you propose to \* \* \* assist the (Latin American) country to produce things that we cannot produce ourselves which we must buy somewhere or other, and you think it is better to buy them nearby than at the great distances, where trouble in the world might interrupt communications?"

"That is the very essence of it, Senator," said Secretary Wallace.

"And this money," continued Senator Hayden, "is to be devoted exclusively to finding out what can be grown in Latin America that we might otherwise import from other parts of the world and if imported would create a purchasing power in the United States for things we want to export to them."

"Purchasing power in their hands," Mr. Wallace replied.

"I say," went on Senator Hayden, "if they can ship us rubber that we would otherwise get from the East Indies, they will have a credit in the United States that will enable them to buy American automobiles, or phonographs, or whatever we have to sell them. That is the proposition."

"That is the proposition," affirmed Mr. Wallace.

A letter from Secretary of State Hull to Senator Glass, of Virginia, was introduced into the record of the subcommittee hearing by Senator Russell. In this letter Secretary Hull said in part:

"I believe that you will agree that in considering the long-range economic relationship between the United States and the other American republics, particularly those which lie within the tropics, the possibilities of complementary trade merit the most careful exploration. \* \* \*

"Furthermore the supply of certain commodities is restricted by the present producing countries, under price controls in the establishment of which American consumers have little, if any voice. \* \* \*

"From the standpoint of national defense, I consider the appropriation of equal importance, and I wish particularly to invite your attention to the urgent necessity of securing for the United States, within an area in which transportation could not be subject to interruption in times of national emergency, sources of strategic and even vital raw materials which do not exist or cannot be produced in this country. In the present temper of world affairs I do not think this point requires any elaboration.

"In the light of the foregoing considerations I earnestly hope that the items will be restored by the Senate. \* \* \*

For a second time the Congress did not grant the request for funds.

Further explanation of Secretary Wallace's views in the matter was contained in his article in the New York Times, of July 9, 1939, to which I have already referred. In that article he said:

"It would seem wise for the Americas to begin to plan at once for the gradual assertion of rubber independence. . . It will be a slow job, because in Latin America they have what is known as the South American leaf-spot disease, which is absent in the rubber-growing sections of the East Indies (there are, of course, rubber diseases in the East Indies equally bad). But by using scientific methods it will undoubtedly be possible to develop, in Latin America, strains of rubber plants which are both high yielding and disease resisting. This will require the utmost cooperation between Latin-American people and resources and North American science and capital; but the job can and will be done to the satisfaction of all concerned within a few years after the will to do it definitely appears."

The question of funds for a survey of agricultural production in Latin America again came up in hearings of a subcommittee of the House Appropriations Committee on July 13, 1939. I appeared before the subcommittee in company with Leslie A. Wheeler, Chief of the Office of Foreign Agricultural Relations of the Department of Agriculture.

Representative Cannon, of Missouri, asked Mr. Wheeler what effect he thought this project would have "in connection with the drive now being made by foreign countries to secure an economic foothold in South American countries."

Mr. Wheeler replied: "I would say that it would help a great deal in offsetting the influence that is exerted in some parts of South America by foreign countries. It is interesting to note that Germany, which has very little foreign exchange, is able to spend as much money, as it does in sending specialists and experts to

Latin-American countries. They are experts in tropical agriculture. It looks to us in the Department of Agriculture, and in the Department of State, which has supported this item every time it has come up—it looks to us as though the United States should have some experts in South America to aid in developing those tropical resources, to offset the activities of some other countries."

Mr. Cannon commented: "It seems to me I heard recently that Japan was rapidly extending her interests in the rubber industry in the East Indies, from which most of the rubber supply comes."

"I think that is correct," said Mr. Wheeler. "Of course, over a long period of years, no one knows what will happen in the Far East, but there is reason to think that it might happen."

Mr. Cannon asked: "In the event of war, what could you say, or what do you say, in considering the importance of this particular product in the United States?"

"Of course, in case of war," Mr. Wheeler replied, "98 percent of our supply of rubber comes from the Far East. That is a big factor from the strategic point of view. It will be a matter of keeping the sea lanes open in the Pacific."

Questions directed to me asked about the leaf disease in rubber. I pointed out that there were other diseases of rubber in the East Indies that were as bad as this leaf disease in South America. I said:

"This disease is similar to the downy mildew disease of hops and the blue mold disease of tobacco. We are controlling it in hops and in tobacco, and there is no reason why it should not be controlled in the case of rubber. In fact, there are some trees that are absolutely resistant to the disease, and there are stocks of such disease-resistant trees in Latin America."

For a third time the request for funds was turned down.

The war in Europe, which had been so long feared, broke out on September 1, 1939, only 7 weeks later. Soon after it began, Secretary Wallace discussed the question of developing rubber in Latin America in a speech before the Commonwealth Club of San Francisco on October 27, 1939. He said:

"The best example of a product for which we are now dependent on the Old World, and which Latin America could grow, is rubber. Although the rubber plant is a native of the New World, we import nearly a billion pounds of rubber each year from the East Indies. Our lack of rubber is the greatest obstacle to our having a self-sustaining hemisphere.

"Would it not be wise for our Americas to begin to plan at once for the gradual assertion of independence in rubber supplies? It will be a slow job, because there are handicaps. In Latin America the rubber plants are subject to the South American leaf-spot disease. But by using scientific methods it will undoubtedly be possible to develop in Latin America strains of rubber plants which are both high-yielding and disease-resisting. This will require the utmost cooperation between Latin-American people and resources and North American science and capital. When this job is done we won't need to worry about what happens to the rubber supplies in the Old World. We won't need to worry about the price of our automobile tires skyrocketing because the supplies of rubber are cut down. We can look to the New World and ride on rubber just the same.

"From the reception which our representatives have had, we know that the Latin-American countries are anxious to develop any or all of these products for which they can find ready markets in the United States. Dr. E. N. Bressman, representing the Department of Agriculture, has visited Latin America three times in the last 2 years and has conferred with a great many of the leading men in Government and agriculture. In Paraguay he made an agricultural survey of the country at the request of the Paraguayan Government. In a number of the tropical Latin-American countries he was able to point out the desirability of producing noncompetitive products such as those I have described, in preference to Temperate Zone products, such as wheat, cotton, and pork. Universally he met with approval of his suggestions. In general, the Latin-American countries desire our cooperation in working out with them the development of these noncompetitive products. Latin America needs North America's scientific help and capital. It is greatly to the interest of both Latin-American and North American farmers to gain an understanding of one another's problems and to work for a solution that will be of mutual benefit."

Another time when Mr. Wheeler and I appeared before a congressional committee was on December 7, 1939, when we testified before a subcommittee of the House Appropriations Committee concerning an item of \$50,000 for providing technical assistance to Latin-American countries in developing tropical agriculture, including rubber production.

When these funds were granted several months later they did not include work on rubber.

On December 21, 1939, the Interdepartmental Committee on Cooperation with the Other American Republics recommended the establishment of an "Institute of Tropical Agriculture" to further the development of rubber and other products. The committee declared:

"It is to the interest of the Americans to introduce into our Western Hemisphere some of the crops of the Eastern Hemisphere. At the present time we are completely dependent upon the Eastern Hemisphere for certain essential supplies, such as rubber, quinine, tea, manila hemp, and supplies of a more minor nature, such as certain essential oils, drugs, and spices. The production and marketing of many of these commodities are subject to national or international controls sometimes with direct participation of foreign governments, which frequently affect both supply and price to the American consumer. Furthermore, in the present disturbed state of the world, we can have little assurance that these sources of supply will always be available to us. The introduction and establishment of these crops in the Western Hemisphere would tend to remove these uncertainties."

The committee declared further: "From our recent experiences and contact with these countries (in Central and South America) it is known that information is needed on:

"1. Methods of compensating for the cheapness of labor in the East Indies, and lack of labor in many parts of the Western Hemisphere in the production of rubber.

"2. Climatological factors and soils to determine the best locations for growing rubber; high-yielding, disease-resistant clones of rubber; management; and important disease pests, such as the South American leaf disease."

Secretary Wallace again discussed the rubber question on May 11, 1940, in a paper prepared for delivery at the Eighth American Scientific Congress, at Washington, D. C., and read by myself in his absence. He said:

"Research on rubber production should meet with the approval of all those interested in or responsible for Western Hemisphere policies. Rubber is the most important of all tropical agricultural products. Although indigenous to South America, rubber is not grown there commercially to any extent. Indications are, however, that it could be and should be an important product of this hemisphere. The Goodyear Co., with its plantings in Costa Rica and Panama, and the Ford Co. with its plantings in the Amazon region of Brazil, have pioneered in the plantation production of rubber here. Research should be undertaken on modern production methods, such as soil management and the developing of high-yielding disease- and insect-resistant strains which can be used in bud grafting. Such research would doubtless lead to the economical production of rubber."

At the request of President Roosevelt, Secretary Wallace and Under Secretary Welles called in the leaders of the rubber industry to get their opinion as to the wisdom of encouraging rubber production in Latin America. With only 3 days' notice, the presidents of most of the large companies met at the Department of Agriculture on May 9, 1940. Included in the group were: John J. Blandin, vice president, Goodyear Co.; John I. Collyer, president, B. F. Goodrich Co.; Jefferson Coolidge, president, United Fruit Co.; Francis B. Davis, Jr., president, United States Rubber Co.; Harvey S. Firestone, Jr., president, Firestone Tire & Rubber Co.; A. Johnston, in charge, Brazilian plantation, Ford Motor Co.; E. J. Thomas, executive vice president, Goodyear Co.; A. L. Viles, president, Rubber Manufacturing Association; H. N. Whitford, secretary, Rubber Manufacturing Association; and others. After considerable discussion of some of the difficulties involved, it was unanimously agreed that, on the basis of common sense alone, our Government should do everything possible to encourage rubber growing in Latin America.

The opening of the German blitzkrieg campaign in the Low Countries and France made the necessity for action concerning rubber more urgent. One of the steps taken by President Roosevelt at that time was the sending of a letter to the Speaker of the House of Representatives, recommending an appropriation of \$1,000,000 for rubber investigations in the Western Hemisphere. The President, in explaining his recommendation, referred to a letter he had received from Harold D. Smith, Director of the Bureau of the Budget. Mr. Smith's letter said, in part:

"The foregoing estimate is submitted to provide funds for a 3-year effort to establish a solid research foundation for the development of rubber production in the Western Hemisphere. The indications are that such production is to be expected principally in Central and South America, supplemented by full development of apparently good possibilities in the United States in the farmed parts of Florida and along the Gulf coast."

A few days later, on May 28, 1940, Dr. E. C. Auchter, Chief of the Bureau of Plant Industry, appeared before the Subcommittee on Deficiencies of the House Appropriations Committee, which was considering the \$1,000,000 item, and explained plans for carrying forward the rubber investigational work. The House, however, passed the deficiency appropriation bill without including the money requested by the President for rubber investigations.

When the bill was about to be considered by the Senate Appropriations Committee, Secretary Wallace, under date of June 19, 1940, wrote to Senator Adams, of Colorado, who was chairman of the Subcommittee on Deficiency Appropriations. His letter said, in part:

"The continuing spread of war and its impact upon international trade emphasized more than ever before the acute need for insuring to the United States adequate, accessible supplies of crude rubber. In the debate on the second deficiency bill on the floor of the House, the possible use of synthetic rubber now being developed industrially was presented as an argument against this item. It is recognized that synthetic rubber can be made, but how much could be produced annually and at what cost is problematical. Neither is it known with assurance whether synthetic rubber will be satisfactory for the great range of uses for which rubber from natural sources is required in this country today. Present knowledge indicates that synthetic rubber could not be produced as cheaply as natural rubber even if large-scale production were possible. Thus, even though these two types of rubber may continue to supplement each other to some extent, the need for establishing a source of natural rubber in the Americas remains a matter of paramount importance. The development of a rubber industry in Latin America would also be a highly significant factor in improving inter-American relations.

"Over 96 percent of the world's rubber supply is produced in the East Indies and Malay Peninsula. Of the total rubber produced, over 1,000,000 tons a year, the United States uses 50 percent (577,000 long tons in 1939). Although the present world supply of rubber is ample under normal conditions if there is assurance that a continuous supply for the United States could be relied upon, there is at present only a 4 months' supply on hand, and this same critical condition may occur intermittently if the world's supply of rubber continues to be grown in areas outside the Americas. Technological advances in rubber manufacture and the development of new uses for rubber are also likely to increase the present known requirements.

"Aside from any measures that may be adopted to insure supplies to meet immediate rubber requirements, there is an equally pressing need for insuring future supplies. This need calls for constructive action now, directed toward the prompt development of rubber production in the Western Hemisphere.

"The experimental evidence of 15 years indicates that the production of rubber in the American continents is to be expected principally from Central and South America. Hevea, the principal tree from which the world supply of crude rubber is produced, is being grown experimentally in the warmer parts of Florida with sufficient promise to indicate commercial possibilities of this and other rubber-producing species along the Gulf coast of the United States, but the full realization of these possibilities awaits further exploration.

"It is necessary, if we are to insure commercial rubber production on the American continents, to determine (1) the location and extent of existing growths or plantings of Hevea, Castilla, and other commercial rubber-producing trees in Central and South America; (2) the condition of these plantings as related to their present health and production capacity; (3) the possibility of expanding the areas of production, and (4) the methods by which possible expansion can be accomplished.

"With the cooperation of the governments of the several countries involved, it is proposed (1) to conduct, simultaneously, 10 surveys in potential rubber-producing areas, and (2) to establish 4 experiment stations in suitable locations within those areas."

The next day, on June 20, 1940, Secretary Wallace appeared before the subcommittee. On that occasion he said:

"I came up because I feel so vigorously at the present time, in connection with international affairs, that this is an exceedingly important item. I feel



our relations with Latin America to be so important that we should encourage any development which would enable them to produce a commodity which we are willing to accept from the standpoint of national defense. I also feel it is important that we have an adequate supply of rubber closer to home, coming on not at once, but coming on as rapidly as is practical to take care of the situation in case the supply from the East Indies should fail.

"I am not ruling out synthetic rubbers. Let us have that. But also let us do a real job in developing natural rubber."

The Senate, on June 22, 1940, approved the rubber investigational work recommended by the President, but cut the amount to \$500,000. This amount was contained in the bill when it was finally enacted into law, and approved by the President on June 27.

I have gone into the history of this whole matter at some length, in order to show how much pioneering was involved in the job of developing rubber production in the Western Hemisphere. The public was not acutely conscious of the national danger resulting from almost exclusive dependence on rubber from Southeastern Asia, and the public's inertia was reflected in the indifference or opposition of numerous Members of Congress.

After the \$500,000 appropriation became available, rubber development work went forward in the Department of Agriculture. Dr. E. W. Brandes, of the Bureau of Plant Industry, and I cooperated in this project. We cooperated closely. He took charge of the field work and, in my new capacity as Assistant Director of the Office of Foreign Agricultural Relations, I handled the relations with the Department of State and the promotion of rubber planting by the industry. Dr. Brandes did a remarkably speedy and thorough job in carrying out field studies in 15 of the other American republics. There are now over a hundred nurseries and nearly 30,000,000 young trees. Sufficient quantities of high-yielding strains of rubber to graft the trees are on hand. The plantation development in Latin America will stem from this plant material.

Then, on September 26, 1941, I was transferred to the Office of the Coordinator of Inter-American Affairs and made Director of the Division of Agriculture. Since that time much of the wild rubber development work has been handled in the division of which I am now the head and has had the vigorous support of the Coordinator, Nelson A. Rockefeller. At the suggestion of Vice President Wallace, Mr. Rockefeller approved a project which eventually resulted in sending 16 rubber production technicians to Latin America. Within the last few days officials of the Rubber Reserve Company have requested the services of the specialists.

The most significant step toward getting a sure and ample supply of rubber for the American consumer in the future was taken on August 16, 1941, when the Societe Haitienne-Americaine de Developpement Agricole (Haitian-American Agricultural Development Corporation) was formed. Thomas A. Fennell is the president and general manager. The corporation has 4,000 employees and contemplates having over 50,000 acres in rubber. These plantings are on small holdings owned by the individual Haitian farmers. Mr. Fennell's staff has worked out successful methods of tapping and coagulating the latex from the mature Castilla rubber trees already growing on the island. These methods promise to revolutionize the Castilla rubber industry in Mexico, Central America, and northern South America, and in my opinion will make possible obtaining as much as 30,000 tons of rubber annually from existing trees, beginning as soon as operations can be organized.

You can see that the work of developing rubber production in Latin America is divided into two parts—one, the immediate, which involves the tapping of existing trees, mainly growing wild in the jungles, and the other, the long-time development of rubber on small farms. I believe it is almost certain that in the long run the latter source of rubber will prove to be the most abundant and cheapest for the American motoring public.

#### ENCOURAGEMENT OF PRODUCTION OF NATURAL RUBBER IN THE UNITED STATES

Along with the work done by the Department of Agriculture looking toward the development of rubber in Latin America, extensive research was carried on to determine the possibilities of rubber production here in the United States. Both lines of work had the vigorous support of Secretary Wallace.

The question of continuance of the research on rubber production in the United States came up in 1939, when the Budget estimate of \$46,749 to finance it was disregarded by the House and the item was eliminated from the Department's appropriation bill. On behalf of the Department of Agriculture, Dr. E. C.

Auchter, Chief of the Bureau of Plant Industry, appeared before the Agricultural Appropriations Subcommittee of the Senate on April 17, 1939.

Dr. Auchter declared: "The elimination of this item would necessitate outright discontinuance of investigations to determine the possibilities of producing a rubber supply in this country, or the potential rubber-producing value of other tropical crops, vines, and ornamentals. The rubber-plant research activities now conducted at the Savannah, Ga., and the Coconut Grove, Fla., field stations would be terminated. The dismissal of eight scientific workers and eight laborers engaged in this work would be involved. If this project is discontinued at the present time, much of the progress made in rubber research and the valuable plant selections that have been developed will be lost. Lack of information by Government scientists concerning the potential rubber-production resources of this country might have serious consequences in case of emergency. It is believed that many of the problems associated with the production of rubber, either in the United States or in adjacent areas of Latin America, can be solved by a continuation of the present investigations.

"The world's production of rubber is about a million tons per year. Of this amount, the United States uses approximately 50 percent. Of all rubber imported into the United States, about 60 percent is used in the manufacture of rubber tires, which are of vital necessity to the defense services of the United States in the transportation of men and materials. Ninety-six percent of all the rubber in the world is produced in the Dutch and English possessions in the East Indies. It is necessary to have this rubber transported across either the Atlantic or the Pacific Ocean to the United States, and either route would be liable to serious interruption in the event of any major international crisis. It has been felt for many years that at least a portion of the rubber consumed in this country should be produced either at home or in areas from which our needs could easily be transported.

"The late Thomas A. Edison, realizing the vital importance of this matter, devoted a great deal of the last 10 years of his life to investigating the possible sources of American rubber. He found that the native goldenrods contain appreciable percentages of rubber, and before his death he had made definite progress in selecting strains of high rubber content. After Mr. Edison's death this material, including all of his selections and records, were transferred to the United States Government, and since that time intensive selection and breeding experiments have been conducted. It has been possible through breeding to increase considerably the percentage of rubber. Practically all of this material and progress will be lost if the work must be terminated now.

"This Department has brought in rubber-bearing plants from all over the world, and these are now being studied under American conditions. Six thousand trees of the chief rubber-bearing tree, *Hevea brasiliensis*, are being used in experimental work in Florida. These are about the only disease-free Hevea trees in the world, and represent a valuable nucleus for encouraging the production of rubber in suitable areas in the United States and Latin America. Another important rubber tree is the Castilla. This shows promise under Florida conditions.

"A recently developed method of mechanical extraction gives promise of commercial utilization of this tree in America which had not hereto seemed possible because of the labor involved, with the resulting high cost of production. Other plants, such as the Madagascar rubber vine, called *Cryptostegia*, show promise as rubber producers in this country."

Eventually the \$46,749 item was restored by the Senate.

The following winter, the matter of continuing this research work was again up for consideration in Congress. Again a proposed appropriation of \$46,749 was being discussed. At that time, on February 26, 1940, Secretary Wallace appeared before the Agricultural Appropriations Subcommittee of the Senate.

He said, in part: "Unless this item is restored it will be necessary to abandon practically all of the rubber collections and rubber research now being conducted in this country. \* \* \*

"The reduction by the House will mean the abandonment of from 6,000 to 7,000 rubber-producing Hevea trees and about 100,000 superior seedling Hevea rubber trees in Florida. It will also prevent further study of the rubber-bearing plants which have been brought in from all over the world to determine their suitability for American conditions. The disease-free Hevea trees which we have at our Florida station are about the only disease-free Hevea trees in the Western Hemisphere and represent a valuable nucleus for encouraging the production of rubber in suitable areas in the United States and Latin America. The bearing Hevea trees in Florida were tapped this past year and tests made

by the Bureau of Standards show that a high grade of rubber was produced from the latex.

"All of the investigational work on the possibility of developing a commercial source of rubber from goldenrod in Georgia will have to be discontinued. This is a continuation of the work started by the late Thomas A. Edison, who devoted much of the last 10 years of his life to investigating the possible sources of American rubber. Our tests of rubber trees suitable for the Canal Zone will likewise have to be dropped, and no further plant explorations in the hope of finding additional rubber-bearing plants which might be adapted to the United States can be conducted. This reduction will also reduce the explorations and the eventual establishment in the Western Hemisphere of such crops as manila hemp, quinine, rotenone-bearing plants, and so forth."

In 1940, the \$46,749 item for rubber research was again eventually included in the agricultural appropriation.

Included in the Department's work with rubber-yielding plants in the United States was research on the possibilities of the shrub known as guayule, especially adapted to the arid regions of the Southwest and Mexico.

It happens that only a week ago last Saturday, on April 12, I was in Salinas, Calif., where the Department of Agriculture is carrying out a gigantic project for the production of rubber from guayule, recently authorized by the Congress and carried out with funds allocated by the President. There I saw perhaps the largest nursery in the world—over 600 acres of guayule seedlings—and in addition hundreds of acres of field plantings. An excellent job is being done under the direction of Maj. Evan Kelley of the Forest Service. He and his organization are exploring the full possibilities of this rubber-bearing plant, and I feel sure that they will develop it to the maximum. Dr. E. W. Brandes, of the Bureau of Plant Industry, is directing a comprehensive research program on guayule.

Vice President Wallace supported the guayule bill, but in spite of this, some misapprehension as to his attitude toward the work with guayule as well as toward synthetic rubber has recently been voiced. Apparently this misapprehension has come from the fact that in his book, *New Frontiers*, published in 1934, he discussed possible domestic rubber production in relation to the tariff. At that time he wrote:

"We have heard the customary argument for the tariff: That our high standard of living results from it. In the old days it was said that we must have a tariff sufficiently great to measure the difference in the cost of production at home and abroad. It was said that if the tariff were high enough to protect our high-cost producers from the low-cost producers abroad, our general standard of living would be higher. The Tariff Commission has solemnly made many investigations as to the cost of production of different commodities here and abroad. The Commissioners knew, all the while, that their findings would eventually be governed for the most part by personal and regional consideration of private benefit. The cost-of-production theory in tariff making was merely a convenient political dodge.

"An extreme illustration of the foolishness of the theory would be furnished if certain individuals growing bananas in greenhouses in the United States were to ask the Tariff Commission (assuming that there was a tariff on bananas) for an increase sufficient to measure the difference in cost of producing bananas in the United States and in Central America.

"Or suppose that, as a result of Department of Agriculture experiments indicating that we can produce rubber in the United States from guayule for 30 cents a pound, Congress places a tariff on rubber of 15 cents a pound. Rubber producers then undertake to prove that the domestic costs are really 40 cents a pound, that the foreign costs are only 15 cents a pound, and that the tariff should be raised. As another argument for the American public, they would doubtless point out that they were paying their labor \$30 a week, whereas the coolie labor of the East Indies is getting only a small fraction of that amount. They would raise the cry, 'We must protect the American standards of living from the orientals who live on 3 cents' worth of rice a day, dress only in a loin cloth, and sleep under thatched roofs.' This illustration is not impossibly fantastic. We have in the United States today highly protected industries which are relatively as inefficient as the rubber industry would be. And these industrialists lament concerning the threat to the American standard of living and weep continuously. They shudder to think what would happen if the tariff on their own inefficiently produced product were lowered."

Remember that this was written in 1934.

Purely on the basis of relative cost of production, and without regard to considerations of national safety, there would have been no reason for stimulating high-cost rubber production in the United States. But in the years following 1934, the international situation became more and more troubled. Considerations of national safety loomed as more and more important, and it was for this reason that Mr. Wallace worked so hard to reduce this country's dependence on a source of rubber 10,000 miles away.

#### ENCOURAGEMENT OF SYNTHETIC-RUBBER PRODUCTION

It was recognized by Secretary Wallace and members of the Department of Agriculture staff that the long-time program for rubber development in the Western Hemisphere would be too slow to meet a sudden emergency. Therefore, along with the experimental work on rubber plants, research pertaining to synthetic rubber was undertaken.

On October 17, 1939, a report entitled "Rubber and Rubberlike Materials" was made to Dr. Henry G. Knight, Chief of the Bureau of Agricultural Chemistry and Engineering, by R. W. Frey. This report was submitted to Secretary Wallace. A few months later, prior to April 1, 1940, Secretary Wallace requested information on buna rubber.

On May 9, 1940, the day before Hitler began his invasion of the Low Countries, Secretary Wallace held a conference with Dr. Knight on the subject of rubber development. Mr. Wallace asked Dr. Knight whether, considering the status of synthetic rubber, he should push the plans for promoting rubber in South America. The reply was: "By all means. With our present knowledge of synthetic rubber we will need the natural rubber probably to any amounts that might be produced in South America in the next few years."

Another report, entitled "Rubber and National Defense, Recent Developments," was sent to Secretary Wallace on May 21, 1940. This report was prepared by Dr. P. H. Groggins, of the Bureau of Agricultural Chemistry and Engineering. Its conclusions were as follows:

"In view of the fact that the rubber problem is a national problem, it may be desirable to hold a conference at which representatives of the rubber, chemical, petroleum, and plastics industries meet with officers of the Army and Navy to lay plans for the orderly development of a lastics industry in the United States. In any proposed program it might be desirable that personal or corporate welfare be subordinated to the common weal. When national defense is involved such a system works best. The construction and operation of regional lastics plants is considered advisable."

When I transmitted this report to the Secretary, I made the following statements:

"There are many figures in regard to what the future price of synthetic rubber will be. A few who venture to give the possible price 10 years from now say it will be about 25 cents per pound, as compared to the price of natural rubber, which should be 10 cents per pound under present methods of production. Also, there is no reason why good research cannot result in a reduction of the cost of natural rubber to even as low as 5 cents per pound. To me the situation appears analogous with that of fuel alcohol. The price spread is somewhat similar, and the possibilities in synthetic rubber production are no greater nor of any more importance. Another important angle on synthetic rubber, from the standpoint of using public funds to do the research job, is that private industry holds the patents. About the only thing the Government could do would be to erect plants at great cost and when the emergency is over, take the loss on the investment."

Dr. Knight called upon Secretary Wallace in his office on May 31, 1940. Accompanying him was Dr. W. J. Sparks, coinventor of butyl rubber, then Chief of the Oil and Protein Division of the Northern Regional Research Laboratory of the Department of Agriculture. They carried with them some samples of butyl rubber and a confidential eight-page report entitled "Status of Synthetic Rubber Manufacture."

In its summary, this report declared:

"No industrial company in the United States has facilities for immediate production of significant quantities of synthetic rubber in case of an emergency. All synthetic rubber manufacturing equipment existing now or being constructed would provide a combined supply of only about 1 percent of the normal domestic requirements.

"Of the products now available, only butyl rubber can be prepared from raw materials immediately available for emergency use in appreciable quantities.

Adaptation of agricultural products in the preparation of synthetic rubber and supplementary compounding ingredients would provide a continuously reproducible supply of raw materials independent of the petroleum industry. Such developments are a part of the authorized program of the Northern Regional Research Laboratory but no immediate action along this line can be taken at least until the building is completed."

The report included the following about butyl rubber:

"Butyl rubber is a copolymer of isobutylene with diolefines. Butadiene is generally used although other diolefines such as pentadiene 1, 3, dimethylbutadiene or isoprene may be used. These products are very similar but their relative merits have not been evaluated. The Standard Oil of New Jersey has a 100-pound-a-day pilot plant in operation making the butadiene copolymer. About 95 percent of the batches are satisfactory. According to present plans the butyl rubber development will be announced at the Detroit meeting of the American Chemical Society. (This was done.) This product is believed to be most attractive from an economic standpoint. (Data in support of this view were presented in the report.)"

Estimates of cost of production of butyl rubber were given, on the basis of 20,000 pounds capacity per day, as being 15 cents, allowing 10 percent for depreciation, and 12.7 cents without depreciation. This included manufacturing cost, product handling, Banbury treatment, conveying, storage, package, and loading, sales and service including sales promotion, advertising, customer service, and technical assistance.

The report also contained a statement that buna-n rubber required from 33 to 50 percent of acrylo-nitrile content with butadiene. This is the oil-resistant buna rubber. The buna-s requires about 50 percent of styrene with the butadiene.

Another excerpt read as follows: "Tires retreaded with butyl rubber ran on a Mercury car for 700 miles without signs of wear. Failure of the butyl rubber—rubber bond stopped the experiment at this point. Laboratory tests show butyl rubber to have superior abrasion and oxidation resistance to rubber. Workers at the Acushnet Rubber Laboratory working on gas masks for the Navy have found butyl rubber to have elastic properties at low temperatures which are superior to those of any other elastic body."

Because of Mr. Wallace's interest in butyl rubber during the period that he was Secretary of Agriculture, the Bureau of Agricultural Chemistry and Engineering started research looking toward the development of synthetic elastomers from agricultural products at the Northern Regional Research Laboratory. This work was started as soon as the laboratory was opened about a year ago.

When Secretary Wallace appeared before the Agricultural Subcommittee of the Senate Appropriations Committee on June 20, 1940, he was asked about synthetic rubber. He replied that he had been watching synthetic rubber development "with very great care" and that he thought it had "a great deal of promise."

In his testimony he said: "I think that the most promising synthetic rubbers are made out of petroleum. From the standpoint of cheapness of production, petroleum will not always be with us. Nobody knows when it will play out; but eventually it will play out."

Asked as to cost, Mr. Wallace said: "For the buna rubber, the last figures on production that I saw were 60 cents a pound. I understand that the butyl rubber produced by the Standard Oil of New Jersey can be produced more cheaply than that. My understanding is that they hope to sell the product of a plant which they are building in New Orleans at 50 cents a pound; but I imagine that they may be able to produce it for less than 50 cents a pound. \* \* \* The current price (of natural rubber) is perhaps 24 cents a pound; but I think with those improved strains undoubtedly it will be possible to produce it for less than 12 cents a pound. And frankly, I do not think any of the synthetic rubbers can meet a price of 12 cents a pound."

Of course, at the present time, no one is greatly interested in the cost of rubber per pound. The main thing is to get the rubber, and synthetic will be the important immediate source of rubber in this emergency.

#### BUILDING UP A RUBBER STOCK PILE

The importance of a rubber stock pile, as I mentioned at the outset of this statement, was recognized in the report on "The Rubber Situation in the United States," which was prepared in the Department of Agriculture in September 1938.

In order to build up such a stock pile, Secretary Wallace conceived the idea of trading some of our surplus cotton for rubber. He discussed this possibility on several occasions with Bernard Baruch and also with persons in the administration. Mr. Wallace suggested to Mr. Baruch that if Mr. Baruch would talk with the then Senator Byrnes (now a Justice of the Supreme Court), Mr. Wallace also would talk with the Senator, with a view to getting some legislation to authorize such a deal.

The idea was mentioned by Mr. Wallace in his testimony before the Agricultural Subcommittee of the Senate Appropriations Committee on April 10, 1939. He said:

"I would also like to mention a proposal which you may or may not want to consider, a proposal looking to the trading of some of our surplus cotton for rubber, disposing thus of accumulated cotton abroad, American cotton abroad, and of rubber in this country, to be held under conditions which would be most helpful to the security of the country involved and most helpful to the market-price structures involved."

The next day the barter project was described in an Associated Press story published in the Washington Evening Star. Following are excerpts from the account:

"The administration, it was learned today, already has sounded out Great Britain, Belgium, and the Netherlands on a proposal to barter surplus American cotton and wheat for two strategic war materials—rubber and tin.

"Formal negotiations will be undertaken by the State Department within a few days. The plan was disclosed last night by Senator Byrnes, Democrat, of South Carolina, who said the barter arrangement could be extended to other nations which supply essential materials that might be difficult to obtain in case of war abroad.

"Senator Byrnes said the barter plan had the endorsement of both Secretary of Agriculture Wallace and Secretary of State Hull. \* \* \*

"As he explained the system, the Commodity Credit Corporation would acquire title to some of the 11,500,000 bales of cotton on which the Government has made loans to farmers. The Government then would negotiate trades with other countries. In turn, it would sell to private manufacturers the rubber, tin, and any other materials acquired. \* \* \*

"These treaties would provide, Senator Byrnes said, that the cotton or wheat should be held by the purchasing country for 5 years unless the market price should go higher than certain stipulated levels.

"A similar provision, designed to prevent price-shattering dumping, would apply to the rubber and tin acquired by the United States.

"Senator Byrnes said 96 percent of the rubber used is produced in the British and Dutch East Indies. British and Dutch rubber production now stands at 50 percent of normal and tin production is down to 40 percent.

"The reserve requirement of rubber recommended by the War and Navy Department," Senator Byrnes continued, "is 266,000 tons, valued at approximately \$85,000,000. It is believed, however, that in order adequately to protect our industries it would be advisable to have an additional 1,250,000,000 pounds, the approximate amount of rubber used by our industries in a year.

"Such a stock, he said, would afford protection against price increases in case of a European war, would prevent industrial shut-downs from shortage of supply and would avoid for a time the necessity of sending American ships into the war zone to obtain supplies.

"Senator Byrnes said the Army and Navy have recommended acquisition of tin reserves costing about \$65,000,000."

Secretary Wallace appeared again before the agricultural subcommittee of the Senate Appropriations Committee on April 13, 1939. On that occasion he said:

"As Secretary of Agriculture, I have been interested for some months in working out a practical plan whereby the United States might exchange certain agricultural raw materials with other countries for reserves outside of current commerce and as part of our national defense program. Products such as cotton and wheat, the surpluses of which are a weakness to our domestic economy, might profitably be traded for other products, such as rubber and tin, which would be a strength to our domestic economy if held as reserves against the contingency of foreign supplies being cut off. Conversations have been held with the State Department and other agencies that would be involved. We have wanted to make sure, of course, that reserve stocks transferred to foreign hands would not hurt demand for our products at some future time when prices might

be already low. Senator Byrnes has given a most statesmanlike presentation of our objectives along these lines, and the President has stressed the urgency of actually effecting such transfers as seen as possible.

"Since this plan would provide for the creation of reserves which would not be made available to current channels of trade except in case of emergency, any transfers of our products arranged under it would have no relation to the wheat export program already in effect, the cotton export program now proposed, or the general course of trade under our reciprocal trade agreements."

A bill was introduced in Congress authorizing the barter deal. On July 21, 1939, Secretary Wallace wrote to Senator Wagner, chairman of the Senate Committee on Banking and Currency, reporting on this bill, S. 2697. Excerpts from his letter follow:

"S. 2697 is a bill designed to facilitate the exchange, pursuant to any agreement which may be concluded by the President, with the advice and consent of the Senate, of reserve stocks of surplus agricultural commodities produced in the United States and held under loans made or made available by the Commodity Credit Corporation for reserve stocks of strategic and critical materials produced abroad \* \* \*.

"The Department favors the enactment of this bill as a means of removing surplus agricultural commodities for the domestic market and of assisting in the common defense."

The Department's position was again made clear on August 8, 1939, in a letter from Acting Secretary of Agriculture Harry Brown to Harold D. Smith, Director of the Bureau of the Budget, in which Mr. Brown recommended Presidential approval of the bill, which in the meantime had been passed by Congress. Mr. Brown wrote:

"The general purpose of this enrolled bill would appear to be in the national interest in that it would enable this country, through appropriate treaties with foreign nations, to dispose of price-depressing surplus agricultural commodities for strategic and critical materials of which this country possesses an insufficient supply and which are needed for purposes of national defense. More specifically, this enrolled bill is particularly desirable to the Department in that it provides enabling legislation to implement an existing treaty entered into between this country and the United Kingdom for the exchange of 500,000 bales of cotton, now held under loans made or made available by the Commodity Credit Corporation, for an amount of rubber equivalent in value now under the control of the United Kingdom.

"This Department is favorable to the provisions of the enrolled bill and has no objection to its approval by the President."

This act was approved by the President on August 11, 1939. Under it, 600,000 bales of cotton were traded for 90,000 tons of rubber. This rubber constitutes about one-seventh of our existing stock pile, and is enough to make 18,000,000 average automobile tires.





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